

California Hospital Outcomes Project



Heart Attack Outcomes 1994 - 1996 *Volume 1: User's Guide*

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2002

*"Equitable Healthcare
Accessibility for California"*

OSHPD

OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT

Report on Heart Attack Outcomes in California, 1994-1996

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Acknowledgments

This report reflects the efforts of the contractors and staff in the Office of Statewide Health Planning and Development. Work was completed under contract 96-0171 with the University of California, Los Angeles.

Roxanne Andrews, Ph.D. and Mary MacDonald had overall responsibility for all aspects of the project, serving as liaisons between OSHPD, the research team, and the included hospitals. OSHPD staff conducted the death certificate linkage.

Gerald F. Kominski, Ph.D. and Rebecca Levan supervised the contract team at UCLA. Dr. Kominski had primary responsibility for revising the *User's Guide* and *Technical Guide*. Lisa Lara was responsible for most of the data processing and statistical analyses, with the assistance of Dr. Hongjian Yu and Dr. Kominski. Dr. Brian Mittman and Cori Reifman led the focus groups of administrators and physicians who provided useful feedback about the content and format of the project reports, and the development of one-page hospital summary reports. Dr. Gregg Fonarow, a cardiologist on the faculty of the UCLA Medical School, served as a clinical consultant to the project team.

The UCLA project team owes a substantial debt to Harold Luft, Ph.D., and Patrick Romano, M.D., M.P.H., who developed the original risk-adjustment models described in this report. We are also indebted to the programming staff at UC San Francisco and UC Davis who developed the original computer programs used in earlier AMI reports. Without the considerable prior effort of both project teams, our work would have been more difficult.

Suggested Citation

Kominski GF and Andrews RM. *Report on Heart Attack Outcomes in California 1994-1996, Volume 1: User's Guide*, Sacramento, CA: California Office of Statewide Health Planning and Development, February 2002.

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Report on Heart Attack Outcomes in California: 1994-1996

The California Hospital Outcomes Project is an initiative mandated by the State of California, and conducted by the Office of Statewide Health Planning and Development (OSHPD), to develop public reports comparing hospital outcomes for selected conditions treated in hospitals throughout the state.

The Report on Heart Attack Outcomes is intended to encourage all California hospitals to improve their care and give credit to the hospitals that are the leaders. It can also help insurers, employers, and consumers to select hospitals based on quality of care.

The California Hospital Outcomes Project

Heart attack (acute myocardial infarction or AMI) was chosen as one of the first conditions to be reported upon by the California Hospital Outcomes Project. Heart attacks are important, common, and can be deadly. Every year approximately 40,000 heart attack patients are admitted to 400 California hospitals. More than 5,000 of these persons die.

The mortality rates published in previous heart attack reports have been used in many ways. Hospitals have used their results to evaluate and improve their quality of care. Payers and providers have used the reports to contract with the best hospitals. Consumers have used the reports to make more informed decisions.

The results published in this report are useful because:

- **They have been risk-adjusted.** Patient age, sex, type of heart attack, and chronic diseases were used to adjust for differences in patient risk when calculating hospital mortality rates.
- **They have been validated.** A major validation study involving nearly 1,000 heart attacks at 30 hospitals showed that variations in how hospitals report their data to OSHPD do not significantly affect their risk-adjusted death rates. In general, low-mortality hospitals treat heart attacks more aggressively than high-mortality hospitals.

Content of the Report on Heart Attack Outcomes

This is the fourth report on heart attack outcomes. The first report was published in December 1993; the second in May 1996; and the third in December 1997. This report includes heart attack cases from 1994 through

1996. The current report includes improvements in the risk-adjustment methodology introduced in the previous report. These improvements include:

- linking with Vital Statistics records to identify deaths occurring outside the hospital;
- refining patient risk-factor definitions based on the findings of the validation study published in 1996; and
- using six months of pre-heart attack hospital records to more completely describe patient risk factors.

This report consists of four volumes:

The ***User's Guide*** (Volume 1) is intended for all those interested in hospital performance including hospital staff, employers, government agencies, health plans, and insurance companies. This volume provides a brief description of the study background and methods. It also contains two tables that display the results for individual hospitals based on heart attacks that occurred between 1994 and 1996.

The ***Technical Guide*** (Volume 2) is intended for health services researchers, health care providers, and others interested in the statistical methods used to calculate risk-adjusted death rates.

The ***Detailed Statistical Results*** (Volume 3) contains the numerical results for individual hospitals upon which the classifications in the *User's Guide* are based. In addition, there are tables that aggregate the results to the county level. It also contains a graphical representation of both individual hospital and county-wide results, which can be used to examine annual trends.

The ***Hospital Comment Letters*** (Volume 4) is intended to give readers of the *Report on Heart Attack* an appreciation of its strengths and weaknesses from the hospitals' perspectives.

To obtain these volumes of the report contact:

Office of Statewide Health Planning and Development
Healthcare Information Resource Center
818 K Street, Room 500
Sacramento, CA 95814
(916) 322-2814

The report volumes are also available on the internet at
<http://www.oshpd.state.ca.us>

Hospitals were provided with a *Hospital Guide to Using the Report Data* several weeks before the *Report on Heart Attack Outcomes* was published. This document accompanied each hospital's patient-specific data. Hospitals used this document to access and use their patient-specific data and to prepare their comment letters, provided in Volume 4. More importantly, hospitals and their physicians can use this information to target areas where heart attack care might be improved.

Section

1

Using this *Guide*

The User's Guide of the Report on Heart Attack Outcomes is intended for all those interested in hospital performance for heart attack care. These may be hospital staff, employers, government agencies, health plans, insurance companies, other health care purchasers and payers, as well as individual consumers.

Hospitals

The *Report on Heart Attack Outcomes* compares heart attack mortality rates for all California hospitals after adjusting for differences in patients' age, sex, and physical health. One of the primary purposes of the report is to improve the quality of heart attack care in **all** California hospitals by encouraging members of the medical and nursing administrative staff and other hospital staff to incorporate this information into their quality management activities.

Use the information in this volume, which summarizes the risk-adjustment methodology and results, as a starting point. Use the graphs to compare your risk-adjusted mortality rates with the statewide benchmark. Examine the *Detailed Statistical Results* to compare your expected mortality rate with your actual mortality rate. Evaluate your hospital's performance along with the performance of other hospitals.

Use the information in the *Technical Guide* and "Hospital Guide to Using the Report Data" to target areas for potential improvement. For example, you may want to analyze the risk-adjusted mortality rates in your hospital after a change in cardiac care protocols. After quality improvement interventions have been implemented, use the information in this report to determine if those interventions have been successful.

Employers and Health Care Purchasers

The information in this report can be useful in your interactions with both health insurance organizations and employees. Use this information, along with the information in the other volumes of this report, as one tool to select and negotiate with insurance carriers on behalf of your employees. Share this information with your employees to help them select a health plan.

This report examines only one dimension of hospital quality; it is not a comprehensive measure of overall quality. No such single measure exists. Other organizations, some of which are listed in the Appendix on page 79, monitor different aspects of health care quality. Information from these organizations can be used to augment the results published in this report.

Government Agencies

The information in this and the other volumes of the *Report on Heart Attack Outcomes* can be useful to state and county agencies involved in arranging care for program beneficiaries. The results can be used in selecting hospitals and in negotiating with managed care organizations.

This report provides information on only one aspect of the quality of care at a particular hospital : the care of patients with heart attacks. It does not address the quality of care for any other condition and should not be used as a general measure of hospital quality.

Health Plans and Health Care Payers

The information contained in the *Report on Heart Attack Outcomes* can help you select hospitals to provide services to your beneficiaries. For example, one large California insurer contacted all of its contracted hospitals. The insurance company asked hospitals how they used their heart attack mortality rates to improve the quality of patient care. Even though the published rates are several years old, a hospital's response can indicate something about its commitment to quality.

You may find it helpful to read the other volumes of the *Report on Heart Attack Outcomes*. The *Technical Guide* will help you understand exactly how the study was done and how the results were calculated. The *Detailed Statistical Results* contains the exact numerical values upon which the results in this volume are based. It also presents graphs of each hospital's annual results.

Remember that this report examines a single dimension of hospital quality and should not be used to evaluate the quality of any hospital services other than heart attack care. Use information from other organizations to augment the findings of this report.

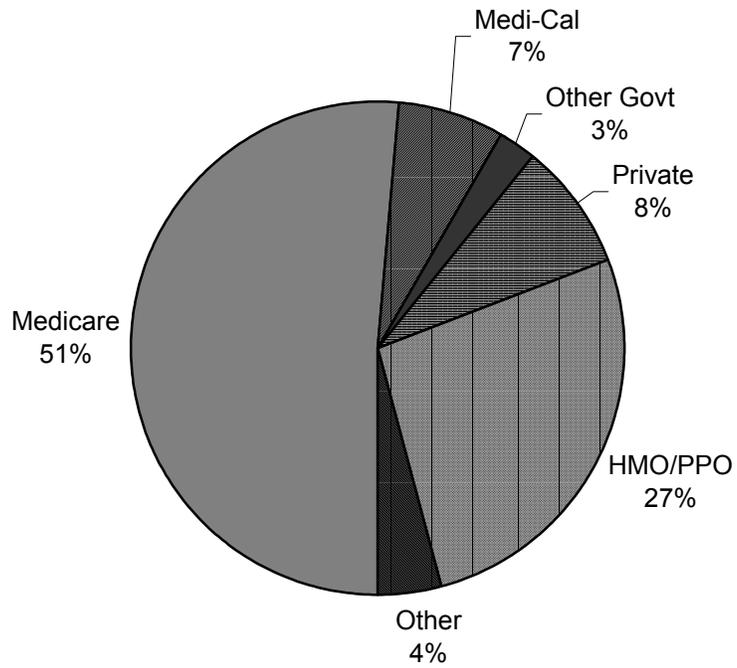
Individuals

Although this report is not specifically intended for individual consumers, it can help you make more informed health care decisions.

Use this information now to prepare yourself in the event that you or someone you know suffers a heart attack. Look at the hospitals you might use in the event of a heart attack. Discuss this information with your physician, health plan, or employer to understand the choices you have in hospital care.

Each year 900,000 people in the United States suffer a heart attack. Approximately 225,000 die. About half of these people die before they get to a hospital. The key to surviving a heart attack is getting to the hospital to begin treatment as quickly as possible. Do not ignore or deny symptoms, do not be embarrassed to go to the hospital, do not wait to seek care.

Who Pays for Heart Attack Hospitalizations?



Source: OSHPD Patient Discharge Dataset – 1994-1996

Evaluating Hospital Quality

Although this report focuses on outcomes, there are many ways of measuring health care quality. No single method is universally accepted as superior. However, some methods are better suited to answering specific types of questions.

Measuring Health Care Quality

Quality is often measured simply by asking patients if they find care satisfactory. The difficulty with this type of evaluation is that patients have very little clinical information upon which to base their judgments. **Patient satisfaction** may be driven by such things as personal interactions with physicians and nurses, the appearance of the facilities, and other factors not necessarily indicative of medical expertise or clinical quality.

One of the most common ways of evaluating health care quality is to examine the hospital's staff, equipment, and facilities. These attributes are called the **structure of care**. For example, one might look at staff credentials, staff-to-patient ratios, or the availability of specialized services. Although these characteristics are important and easy to measure, they tell more about the care patients *might* receive than the care patients *actually* receive.

Some quality assessment techniques do measure directly the care that is received. This approach evaluates the **process of care**, which includes such things as diagnostic accuracy and the appropriate use of drugs, tests, or treatments. This type of quality evaluation can be particularly useful to doctors, nurses, and hospitals, even though the most appropriate care is not always easily defined or agreed upon. Measuring the process of care can be controversial and difficult for a non-clinician to interpret.

All of the above methods fall short of answering the question that is most important to patients — “Which hospital or doctor is most likely to make me better?” Answering this question requires measuring the **outcome of care**. Positive outcomes, such as improved health or improved functional status are very common but are also very subjective and difficult to measure. Adverse outcomes, such as complications, disability, or death are much less frequent. The easiest adverse outcome to measure is death, but the others are also important to consider. Although measurement of outcomes seems to provide the most direct answers to questions about health care quality, it is perhaps the most technically complex measure.

Risk-Adjusted Outcomes

Comparing hospitals on their outcomes is difficult because different hospitals treat different types of patients. Some hospitals treat patients who are older or sicker than those at other hospitals. A technique called **risk-adjustment** accounts for these differences in patient characteristics. **Risk factors** are the patient characteristics that might influence the outcome of medical care.

In this report, we are evaluating death rates following heart attack. If one hospital receives sicker patients than another hospital, we would expect it to have more heart attack deaths. Adjusting for patient characteristics allows us to compare all hospitals with the statewide benchmark.

Strengths and Weaknesses of Risk-Adjusted Outcomes Measurement

The most important strength of risk-adjusted outcomes measurement is that it attempts to answer the questions that are most relevant and understandable to health care purchasers and consumers. They have a right to know the value of the health care that they pay for. In seeking economical care, they need reassurance that they will not sacrifice quality of care.

Risk-adjusted outcomes measurement is very useful to hospitals and physicians for targeting areas that need improvement. After the target areas are identified, hospitals and physicians need to know more about what they should do differently. For this reason, hospitals and physicians focus on the structure and process of care in their quality improvement activities. They can use risk-adjusted outcomes to determine if these activities have been successful.

The principal weakness of evaluating quality based on risk-adjusted outcomes is that it is impossible to account for every single risk factor that may influence a particular outcome. It is possible that an adverse outcome was the result of unmeasured risk rather than poor hospital quality. Furthermore, although the design of this study attempts to account for chance, it can be an important factor for hospitals treating a small number of heart attack cases. A high quality hospital may experience a large number of deaths, just as one may flip a coin several times and get all tails.

California is one of the few states attempting to measure health care quality. The methods and techniques for measuring outcomes are still in development and may occasionally result in the misclassification of an individual hospital. However, the methods used in this study have been validated by reviewing approximately 1,000 medical records of heart attack patients throughout the state.

The primary objective of this report is not to single out individual hospitals, but to motivate all hospitals to take a closer look at the care they provide for heart attack patients. The experience in other states provides some evidence that this can happen. Since 1990, New York has published hospital

mortality rates for heart bypass surgery. During the subsequent three years, their statewide mortality rate dropped from 4.17% to 2.45%, a decrease of 41%.

FREQUENTLY ASKED QUESTIONS

Q: *What was the time period covered?*

A: Three years of data were included in the study: 1994, 1995, and 1996. Aggregate results are presented in this volume and annual results are presented in the *Detailed Statistical Results*.

Q: *How many hospitals were included in the study?*

A: 1994: 389 hospitals
1995: 388 hospitals
1996: 384 hospitals
Overall: 408 different hospitals were included for at least one of the years

Measuring Heart Attack Mortality

This heart attack study calculates the percent of hospital patients who died within 30 days following a heart attack. It compares the death rates among California hospitals after considering the fact that different patients have different chances of dying due to individual risk-factors.

Data Sources

The data used in this analysis came from two different sources: the California Hospital Discharge data set collected by OSHPD and the California Vital Statistics data base maintained by the California Department of Health Services. The discharge data base was used to identify heart attack patients and the risk factors. The vital statistics data base was used to determine which patients died within 30 days of suffering a heart attack.

The discharge data base contains information on all patients admitted to non-federal California hospitals. It includes patient demographic data such as age, race, and zip code of residence, and hospitalization data such as length of stay and total charges, as well as a list of diagnoses and procedures. This information was used to select the cases to be analyzed. The goal was to include all patients over 18 years of age who had just suffered a heart attack due to coronary artery disease. Patients hospitalized prior to January 1, 1994 and after December 1, 1996 were not included in this study.

All non-federal acute-care hospitals in California were eligible to be included in this report. Some hospitals were not included for two possible reasons. First, some hospitals had no patients meeting the inclusion criteria. Second, some hospitals had eligible patients, but were excluded because of unusual patterns in the discharge data they reported to the State. The most common such pattern was an implausibly low percentage of patients with a common risk factor, such as high blood pressure.

Risk Factors

Some hospitals have sicker patients than others. To make comparisons as fair as possible, we adjusted for severity of illness. A combination of clinical expertise and statistical tests were used to identify the risk factors that were used in the adjustment process. This process used all information reported by hospitals, including patient age, sex, the type and location of the heart attack, and the specific chronic diseases in the table on the next page.

Two different statistical models, or sets of risk factors, were used to adjust for patient differences. Some demographic factors, such as insurance status and race, and some clinical factors, such as coma and shock, *may* reflect a patient's health at admission. Alternatively, they *may* be associated with the quality of care that the patient received or events that happened after admission. Factors that reflect quality of care should not be included in risk-adjustment models, because they are at least partially under the hospital's control.

The first model, called **Model A**, is more conservative, because the demographic and clinical risk factors it contains almost certainly were present when the patient entered the hospital and reflect his or her health at admission. The second model, called **Model B**, is more comprehensive, because it contains all of the risk factors in Model A, as well as others, that may be associated with *either* health at admission *or* quality of care. For example, patients without insurance may be sicker than insured patients when they enter the hospital. On the other hand, resource constraints associated with caring for uninsured patients may lead to worse care.

One cannot say whether one model is better than the other. Model A accounts only for differences in patient characteristics, not differences in the quality of care. Model B accounts for more of the variation in mortality across hospitals, but may also provide for a weaker analysis of quality of care. To the extent that both models give similar results, one can be more confident of those results.

Most Important Risk Factors in Both Models

- Age
- Sex
- Type of heart attack
- Chronic diseases, such as
 - ◆ Liver disease
 - ◆ Kidney disease
 - ◆ Heart disease
 - ◆ Neurologic disease
 - ◆ Cancer
 - ◆ Diabetes

Outcome Rates

The risk-adjustment models described above were used to estimate each patient's probability of death. The actual number of deaths at each hospital was then compared to the expected number of deaths derived by adding these probabilities. The results are shown in the table in Section 6, "Comparing Observed to Expected Mortality." Risk-adjusted mortality rates

were also estimated for each hospital, so that the performance of each hospital could be evaluated alongside that of other hospitals in the same community. The results are shown in Section 7, "Comparing Hospital Rates to the Statewide Rate." Compared to the previous Report, the statewide 30-day death rate has declined steadily from 15.1% in 1991 to 12.4% in 1996.

Statewide Frequencies

Year	Number of AMI patients hospitalized	Number of deaths within 30 days of admission	30-day death rate
1994	41,927	5,436	12.97%
1995	42,183	5,398	12.80%
1996	39,613	4,892	12.35%
TOTAL	123,723	15,726	12.71%

Interpreting the Results

Quality of care is one reason a hospital's heart attack mortality rate may be unusually high or unusually low. It is important to understand the other three factors that may contribute to an individual hospital's results.

Unmeasured Risk

As mentioned earlier, the data reported to the State do not permit identification of all risk factors. For example, some hospitals treat a large percentage of patients who do not wish to be resuscitated if cardiac arrest should occur. Other hospitals may have few of these patients. Information on resuscitation status is not currently in the California data base, so it cannot be used as a risk factor. Therefore, if a hospital has an unusually large percentage of Do Not Resuscitate (DNR) patients, its risk-adjusted death rate may be too high when compared with a hospital that has very few DNR patients.

Variations in Reporting

Variations in reporting practices may affect a hospital's risk-adjusted outcomes. Hospitals that neglect to report important risk factors could have risk-adjusted mortality rates that are too high. However, the heart attack validation study published in 1996 showed that differences in hospital reporting practices explain little of the variation in risk-adjusted mortality. Nevertheless this may be a problem for a few individual hospitals.

Chance

Chance is important to consider, because no matter how careful the study, the results may have occurred randomly, particularly in hospitals with relatively few cases. For example, five coin tosses resulting in four heads and one tail (80% heads) is quite possible. Five hundred coin tosses resulting in four hundred heads (80% heads) is quite improbable. Statistical methods can compute how probable such an outcome would be. Researchers must decide where to draw the line between findings that should and should not be attributed to chance. A finding is called "statistically significant" when the probability of it being explained by chance is so low that the researcher is willing to risk incorrectly labeling the finding as true.

Statistical significance is measured in p-values. The p-value of 0.01 used in this report means that one time in 100 a hospital may be classified as an outlier due to chance alone.

Finally, hospitals designated as having better or worse than expected outcomes in the table beginning on page 19 may provide better or worse quality of care than those not so designated. The process of care was not evaluated in this study, so the specific practices that may account for the performance of these facilities are not known. However, the validation study (published in 1996) identified several potential differences between hospitals with low risk-adjusted mortality and those with high risk-adjusted mortality. These include differences in the use of invasive treatments, such as angioplasty and coronary artery bypass surgery, and certain medications, such as heparin and aspirin.

Risk-Adjusted Mortality Rates in California Hospitals, 1994-1996 (N=408)

	Hospitals	Percent
As Expected	317	77.7
Better than expected in at least one model	33	8.1
Worse than expected in at least one model	42	10.3
No deaths; too few cases	16	3.9

Another way of assessing hospital performance is to compare risk-adjusted mortality rates over time. Comparing results in this report to those from the 1997 *Volume 1: User's Guide* indicates that among the 393 hospitals included in both reports, 112 changed categories in this report. Of the 32 hospitals in the better than expected category, 12 were in that category previously. Of the 42 hospitals in the worse than expected category, 10 remained in this category from the previous report.

Change in Risk-Adjusted Mortality Categories Among California Hospitals, Current Report (1994-1996) Compared to Previous Report (1991-1993) (N=393)

		Status in Current Report (1994-1996)			
		Better	As Expected	Worse	No deaths
Status in Previous Report (1991-1993)	Better	12	24	0	0
	As Expected	20	253	32	7
	Worse	0	20	10	0
	No deaths	0	9	0	6

Mortality Results

Hospital results have been summarized in two tables. The first table, beginning on page 19, shows which hospitals have mortality rates significantly better or worse than expected. The second table, beginning on page 49, compares each hospital's overall risk-adjusted mortality rate with the statewide rate. Hospitals are listed alphabetically by county in both tables. If you cannot find a particular hospital, it is possible that the hospital does not treat heart attack patients or that it is listed under another name.

Comparing Observed and Expected Mortality

Overall Results

- ★ Significantly better than expected ($p < 0.01$)
- ☑ No deaths reported; too few cases for statistical significance
- Not significantly different than expected
- Significantly worse than expected ($p < 0.01$)

These symbols represent the four categories of overall results for 1994 through 1996. Hospitals having mortality rates significantly lower (better) than expected ($p < 0.01$), based on the characteristics of their patients, are represented by a bold star (★). Hospitals having mortality rates significantly higher (worse) than expected ($p < 0.01$) are represented by a solid circle (●). All other hospitals are in the middle category.

A special symbol (☑) represents hospitals that had no deaths during these three years, but treated too few heart attack cases to be classified as significantly better than expected.

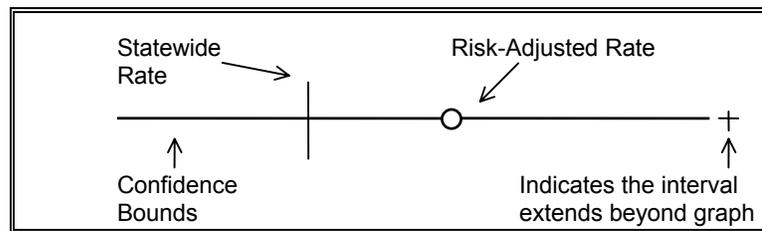
Some hospitals were excluded for all three years of the study because of limitations in the data they reported to OSHPD. Those hospitals are shown with the symbol ✖. Section 5 in the *Technical Guide* gives more detail about the hospitals that were excluded.

Hospitals that submitted comment letters are designated by the symbol ‡. Those letters are published in an accompanying volume (Volume 4), *Hospital Comment Letters*. It is important to read these letters so that hospital results can be more completely understood.

Comparing Risk-Adjusted Rates to the Statewide Death Rate

Another way of evaluating a hospital is to compare its risk-adjusted death rate to the statewide rate. The second table, which is a graphical representation of each hospital's aggregate risk-adjusted death rate, presents this comparison. The vertical line represents the statewide average. The circle on the horizontal bar is the hospital's risk-adjusted mortality rate.

The combined 1% significance tests at the lower- and higher-than-expected levels produces a 98% confidence interval around the risk-adjusted mortality rate (circle). The bar represents the 98% confidence bounds surrounding that mortality rate. This means that there is a 98% probability the hospital's true risk-adjusted mortality rate falls somewhere on that bar. Therefore, if the bar crosses the state average, the hospital's overall results are not significantly different from the state average. In general, the more cases a hospital treats, the smaller the confidence bounds surrounding its risk-adjusted rate.



Comparing Observed to Expected Mortality

Report on Heart Attack Outcomes, 1994-1996

Model A

Model B

Alameda County

Alameda County Medical Ctr-Fairmont Campus	<input type="checkbox"/>	<input type="checkbox"/>
Alameda County Medical Ctr-Highland Campus	<input type="checkbox"/>	★
Alameda Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Alta Bates Medical Center-Ashby Campus	★	★
Eden Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Hayward‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Oakland Campus‡	★	★
San Leandro Hospital‡	●	<input type="checkbox"/>
St. Rose Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Summit Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Valley Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Washington Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Amador County

Sutter Amador Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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- ★ Significantly better than expected ($p < 0.01$)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected ($p < 0.01$)
- * Hospital excluded due to data limitations
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Butte County

Biggs Gridley Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Chico Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Enloe Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Feather River Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Oroville Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Calaveras County

Mark Twain St. Joseph's Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Colusa County

Colusa Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Contra Costa County

Contra Costa Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Doctors Medical Center, Pinole Campus	<input type="checkbox"/>	<input type="checkbox"/>
Doctors Medical Center, San Pablo Campus	<input type="checkbox"/>	<input type="checkbox"/>
John Muir Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Richmond‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Walnut Creek‡	★	<input type="checkbox"/>
Los Medanos Community Hospital	●	●
Mt. Diablo Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
San Ramon Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Delta Medical Center	●	<input type="checkbox"/>

Del Norte County

Sutter Coast Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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El Dorado County

Barton Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Marshall Hospital	★	<input type="checkbox"/>

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Fresno County

Clovis Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Coalinga Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Fresno Community Hospital and Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Fresno‡	<input type="checkbox"/>	<input type="checkbox"/>
Kingsburg District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sanger General Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Selma District Hospital	x	x
Sierra Hospital-Fresno	<input type="checkbox"/>	<input type="checkbox"/>
Sierra Kings Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Agnes Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
University Medical Center	●	●

Glenn County

Glenn Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
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 Not significantly different than expected

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Humboldt County

General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mad River Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Redwood Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
So. Humboldt Community Hospital District	<input type="checkbox"/>	<input type="checkbox"/>
St. Joseph Hospital-Eureka	<input type="checkbox"/>	<input type="checkbox"/>

Imperial County

Calexico Hospital	<input type="checkbox"/>	<input type="checkbox"/>
El Centro Regional Medical Center	●	<input type="checkbox"/>
Pioneers Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Inyo County

Northern Inyo Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Southern Inyo Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Kern County

Bakersfield Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Delano Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Good Samaritan Hospital-Bakersfield	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Kern Medical Center	<input type="checkbox"/>	●
Kern Valley Hospital District	<input type="checkbox"/>	<input type="checkbox"/>
Mercy Hospital-Bakersfield	<input type="checkbox"/>	<input type="checkbox"/>
Ridgecrest Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
San Joaquin Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
West Side District Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Kings County

Central Valley General Hospital	x	x
Corcoran District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Hanford Community Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Lake County

Redbud Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Lakeside Hospital	●	●

Lassen County

Lassen Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
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Los Angeles County

Alhambra Hospital	●	●
Antelope Valley Hospital	□	□
Barlow Respiratory Hospital	□	□
Bay Harbor Hospital	□	□
Bellflower Medical Center	□	□
Bellwood General Hospital	□	□
Beverly Hospital	□	□
Brotman Medical Center	□	□
California Hospital Medical Center	□	□
Cedars-Sinai Medical Center	★	★
Centinela Hospital Medical Center	□	□
Century City Hospital	□	□
Citrus Valley Med Ctr, Inter-Community Campus	□	□
Citrus Valley Med Ctr, Queen of the Valley Campus	□	□
City of Hope National Medical Center	□	□
Coast Plaza Doctors Hospital	□	□
Columbia West Hills Medical Center	□	□
Community & Mission Hospitals-Huntington Park	□	□

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Los Angeles County, Continued

Community Hospital of Gardena	<input type="checkbox"/>	<input type="checkbox"/>
Covina Valley Community Hospital	●	●
Daniel Freeman Marina Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Daniel Freeman Memorial Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Desert Palms Community Hospital	●	<input type="checkbox"/>
Doctors Hospital of West Covina	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Downey Community Hospital‡	●	●
East Los Angeles Doctors Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Encino Tarzana Regional Medical Center-Encino‡	<input type="checkbox"/>	<input type="checkbox"/>
Encino Tarzana Regional Medical Center-Tarzana‡	<input type="checkbox"/>	<input type="checkbox"/>
Foothill Presbyterian Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Garfield Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Glendale Adventist Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Glendale Memorial Hospital and Health Center‡	<input type="checkbox"/>	★
Good Samaritan Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Granada Hills Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Greater El Monte Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

Hawthorne Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Henry Mayo Newhall Memorial Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Hollywood Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Huntington East Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Huntington Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Bellflower‡	★	<input type="checkbox"/>
Kaiser Foundation Hospital-Harbor City‡	★	<input type="checkbox"/>
Kaiser Foundation Hospital-Los Angeles‡	★	<input type="checkbox"/>
Kaiser Foundation Hospital-Panorama City‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-West Los Angeles Med Ctr‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Woodland Hills‡	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/Harbor-UCLA Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/High Desert Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L.A. Co/Martin Luther King Charles R. Drew Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/Olive View-UCLA Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
L.A. Co/Rancho Los Amigos Hospital‡	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L.A. Co/USC Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

Lakewood Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Lancaster Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Little Company of Mary Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Long Beach Community Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Long Beach Doctor's Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Long Beach Memorial Medical Center	⊛	<input type="checkbox"/>
Los Angeles Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Los Angeles Community Hospital of Norwalk	<input type="checkbox"/>	<input type="checkbox"/>
Los Angeles Metropolitan Medical Center	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Memorial Hospital of Gardena	●	<input type="checkbox"/>
Methodist Hospital of Southern California	<input type="checkbox"/>	<input type="checkbox"/>
Midway Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Mission Community Hospital-Panorama	<input type="checkbox"/>	<input type="checkbox"/>
Mission Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Monrovia Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Monterey Park Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Motion Picture and Television Fund Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

Newhall Community Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
North Hollywood Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Northridge Hospital Med Ctr, Roscoe Boulevard Campus	<input type="checkbox"/>	<input type="checkbox"/>
Northridge Hospital Med Ctr, Sherman Way Campus	<input type="checkbox"/>	<input type="checkbox"/>
Orthopaedic Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Pacific Alliance Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Pacific Hospital of Long Beach	<input type="checkbox"/>	<input type="checkbox"/>
Pacifica Hospital of the Valley	<input type="checkbox"/>	<input type="checkbox"/>
Pioneer Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Pomona Valley Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Presbyterian Intercommunity Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Providence Holy Cross Medical Center	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Providence Saint Joseph Medical Center	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Queen of Angels-Hollywood Presbyterian Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
Rio Hondo Memorial Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Robert F. Kennedy Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Salik Health Care Speciality Hospital	<input type="checkbox"/>	<input type="checkbox"/>
San Dimas Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

San Gabriel Valley Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
San Pedro Peninsula Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Marta Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Monica UCLA Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Santa Teresita Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sherman Oaks Hospital & Health Center	<input type="checkbox"/>	<input type="checkbox"/>
South Bay Hospital	<input type="checkbox"/>	★
Specialty Hospital of Southern California	<input type="checkbox"/>	<input type="checkbox"/>
St. Francis Medical Center-Lynwood	<input type="checkbox"/>	<input type="checkbox"/>
St. John's Health Center	★	★
St. Luke Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Mary Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Vincent Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Suburban Medical Center‡	<input type="checkbox"/>	●
Temple Community Hospital	★	<input type="checkbox"/>
Terrace Plaza Medical Center	☑	☑
Thompson Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

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Los Angeles County, Continued

Torrance Memorial Medical Center	★	□
Tri City Regional Medical Center	□	□
UCLA Medical Center	□	★
USC University Hospital	□	□
Valley Presbyterian Hospital	□	□
Verdugo Hills Hospital	□	□
Washington Medical Center	□	□
West Valley Hospital and Health Center	□	□
Westside Hospital	□	□
White Memorial Medical Center	□	□
Whittier Hospital Medical Center	□	□
Woodruff Community Hospital	□	□

Madera County

Chowchilla District Memorial Hospital	□	□
Madera Community Hospital	□	●

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Marin County

Kaiser Foundation Hospital-San Rafael‡	★	★
Marin General Hospital	□	□
Novato Community Hospital	□	□

Mariposa County

John C. Fremont Hospital	□	□
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Mendocino County

Frank R. Howard Memorial Hospital	□	□
Mendocino Coast District Hospital	□	□
Ukiah Valley Medical Center-Adventist Health	□	□

Merced County

Bloss Memorial Healthcare District	□	□
Dos Palos Memorial Hospital	☑	☑
Memorial Hospital Los Banos	□	□
Mercy Hospital & Health Services	□	□
Sutter Merced Medical Center	●	●

Modoc County

Modoc Medical Center	☑	☑
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Mono County

Mammoth Hospital

Monterey County

Community Hospital of the Monterey Peninsula

George L. Mee Memorial Hospital

Natividad Medical Center

Salinas Valley Memorial Hospital

Napa County

Nelson Holderman Memorial Ctr (Veterans Home of California)

Queen of the Valley Hospital Napa Valley Med Ctr‡

St. Helena Hospital

Nevada County

Sierra Nevada Memorial Hospital

Tahoe Forest Hospital District

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Orange County

Anaheim General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Anaheim Memorial Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Brea Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Chapman Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Coastal Communities Hospital	<input type="checkbox"/>	<input type="checkbox"/>
College Hospital Costa Mesa	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Huntington Beach Hospital and Med Ctr	<input type="checkbox"/>	<input type="checkbox"/>
Columbia San Clemente Hospital Med Ctr‡	<input type="checkbox"/>	<input type="checkbox"/>
Columbia West Anaheim Medical Center	●	<input type="checkbox"/>
Fountain Valley Regional Hospital and Med Ctr-Fountain Valley‡	●	<input type="checkbox"/>
Friendly Hills Regional Medical Center	●	●
Garden Grove Hospital and Med Ctr, Tenet Corp.	<input type="checkbox"/>	<input type="checkbox"/>
Hoag Memorial Hospital Presbyterian	<input type="checkbox"/>	<input type="checkbox"/>
Irvine Medical Center	<input type="checkbox"/>	●
Kaiser Foundation Hospital-Anaheim‡	<input type="checkbox"/>	<input type="checkbox"/>
La Palma Intercommunity Hospital	<input type="checkbox"/>	●

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Orange County, Continued

Los Alamitos Medical Center	●	□
Martin Luther Hospital-Anaheim	□	□
Mission Hospital Regional Medical Center	★	★
Orange Coast Memorial Medical Center	□	□
Pacifica Hospital	□	□
Placentia-Linda Community Hospital	□	□
Saddleback Memorial Medical Center‡	□	□
Santa Ana Hospital Medical Center	□	□
South Coast Medical Center	□	□
St. Joseph Hospital-Orange	□	□
St. Jude Medical Center	□	□
Tustin Hospital Medical Center	□	□
University of California, Irvine Medical Center	□	□
Western Medical Center Anaheim	□	□
Western Medical Center Santa Ana‡	●	●

Placer County

Sutter Auburn Faith Hospital	□	□
Sutter Roseville Medical Center	□	□

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Plumas County

Eastern Plumas Healthcare District	<input type="checkbox"/>	<input type="checkbox"/>
Indian Valley Healthcare District	<input type="checkbox"/>	<input type="checkbox"/>
Plumas District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Seneca Hospital	<input type="checkbox"/>	<input type="checkbox"/>

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Riverside County

Corona Regional Rehab Center-Magnolia	<input type="checkbox"/>	<input type="checkbox"/>
Desert Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Eisenhower Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Hemet Valley Medical Center‡	★	★
Inland Valley Regional Medical Center	<input type="checkbox"/>	★
John F. Kennedy Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Riverside‡	<input type="checkbox"/>	<input type="checkbox"/>
Lakeside Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Menifee Valley Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Moreno Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Palo Verde Hospital	<input type="checkbox"/>	●
Parkview Community Hospital Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Riverside Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Riverside General Hospital University Med Ctr	<input type="checkbox"/>	●
San Gorgonio Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sharp Healthcare Murietta	<input type="checkbox"/>	<input type="checkbox"/>

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Sacramento County

Kaiser Foundation Hospital-Sacramento‡	★	★
Kaiser Foundation Hospital-South Sacramento‡	□	□
Mercy American River/Mercy San Juan Hospital, American River Campus	□	□
Mercy American River/Mercy San Juan Hospital, San Juan Campus	□	□
Mercy General Hospital	□	□
Mercy Hospital of Folsom	□	□
Methodist Hospital of Sacramento	□	□
Sutter General Hospital	●	●
Sutter Memorial Hospital	□	□
U.C. Davis Medical Center	●	□

San Benito County

Hazel Hawkins Memorial Hospital-San Benito Healthcare District	□	□
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San Bernardino County

Barstow Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Bear Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Chino Valley Medical Center‡	●	●
Community Hospital of San Bernadino	●	●
Desert Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Hi Desert Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Fontana‡	<input type="checkbox"/>	<input type="checkbox"/>
Loma Linda University Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Mountains Community Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Needles-Desert Communities Hospital	★	<input type="checkbox"/>
Redlands Community Hospital	<input type="checkbox"/>	●
San Antonio Community Hospital	●	<input type="checkbox"/>
San Bernardino County Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Bernardine Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Mary Regional Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
U.S. Family Care Medical Center, Montclair	<input type="checkbox"/>	<input type="checkbox"/>
Vencor Hospital-Ontario	×	×
Victor Valley Community Hospital	●	●

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San Diego County

Alvarado Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Fallbrook District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Green Hospital of Scripps Clinic	★	<input type="checkbox"/>
Grossmont Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Harbor View Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-San Diego‡	★	★
Mercy Hospital & Medical Center-San Diego	<input type="checkbox"/>	<input type="checkbox"/>
Mission Bay Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Palomar Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Paradise Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Pomerado Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Scripps Hospital-East County	●	●
Scripps Memorial Hospital-Chula Vista	<input type="checkbox"/>	<input type="checkbox"/>
Scripps Memorial Hospital-Encinitas	<input type="checkbox"/>	<input type="checkbox"/>
Scripps Memorial Hospital-La Jolla	<input type="checkbox"/>	<input type="checkbox"/>
Sharp Chula Vista Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

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San Diego County, Continued

Sharp Coronado Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sharp Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Tri-City Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
UCSD Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
UCSD/Thornton Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Villa View Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

San Francisco County

California Pacific Med Ctr-California Campus‡	<input type="checkbox"/>	<input type="checkbox"/>
California Pacific Med Ctr-Pacific Campus‡	★	★
Chinese Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Davies Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-San Francisco	★	★
Med Ctr at the University of Calif San Francisco	<input type="checkbox"/>	<input type="checkbox"/>
San Francisco General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Francis Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Luke's Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Mary's Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
UCSF/Mt. Zion Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

- ★ Significantly better than expected (p<0.01)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected (p<0.01)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

San Joaquin County

Dameron Hospital‡	●	●
Doctors Hospital of Manteca	□	□
Lodi Memorial Hospital	□	□
San Joaquin General Hospital	□	●
St. Dominic's Hospital	□	□
St. Josephs Medical Center	□	□
Sutter Tracy Community Hospital	□	□

San Luis Obispo County

Arroyo Grande Community Hospital	□	□
French Hospital Medical Center	□	□
San Luis Obispo County General Hospital	□	□
Sierra Vista Regional Medical Center	□	□
Twin Cities Community Hospital	□	□

- ⊕ Significantly better than expected ($p < 0.01$)
- ☑ No deaths reported; too few cases for statistical significance
- Not significantly different than expected

- Significantly worse than expected ($p < 0.01$)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

San Mateo County

Kaiser Foundation Hospital-Redwood City‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-South San Francisco‡	<input type="checkbox"/>	<input type="checkbox"/>
Mills Health Center	<input type="checkbox"/>	<input type="checkbox"/>
Peninsula Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
San Mateo County General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sequoia Hospital	<input type="checkbox"/>	★
Seton Medical Center‡	●	<input type="checkbox"/>

Santa Barbara County

Goleta Valley Cottage Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Lompoc Hospital District‡	<input type="checkbox"/>	●
Marian Medical Center‡	●	●
Santa Barbara Cottage Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Ynez Valley Cottage Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. Francis Medical Center of Santa Barbara	<input type="checkbox"/>	<input type="checkbox"/>
Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>

- ★ Significantly better than expected (p<0.01)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected (p<0.01)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

Santa Clara County

Alexian Brothers Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Good Samaritan Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia San Jose Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Columbia South Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Community Hospital of Los Gatos	<input type="checkbox"/>	<input type="checkbox"/>
El Camino Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Santa Clara‡	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Santa Teresa Community Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
Lucile S Packard Childrens Hospital at Stanford	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
O'Connor Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Clara Valley Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
St. Louise Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Stanford University Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Santa Cruz County

Dominican Santa Cruz Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Watsonville Community Hospital	●	<input type="checkbox"/>

- ⊕ Significantly better than expected (p<0.01)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected (p<0.01)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

Shasta County

Mayers Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Mercy Medical Center-Redding	<input type="checkbox"/>	<input type="checkbox"/>
Redding Medical Center	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Siskiyou County

Mercy Medical Center Mt. Shasta	<input type="checkbox"/>	<input type="checkbox"/>
Siskiyou General Hospital	x	x

Solano County

Kaiser Foundation Hospital-Vallejo‡	<input type="checkbox"/>	<input type="checkbox"/>
Northbay Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Solano Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
VacaValley Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>

- Significantly better than expected (p<0.01)
- No deaths reported; too few cases for statistical significance
- Not significantly different than expected

- Significantly worse than expected (p<0.01)
- x Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

Sonoma County

Columbia Healdsburg General Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Columbia Palm Drive Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Kaiser Foundation Hospital-Santa Rosa‡	<input type="checkbox"/>	<input type="checkbox"/>
Petaluma Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Rosa Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sonoma Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Sutter Medical Center of Santa Rosa‡	<input type="checkbox"/>	<input type="checkbox"/>
Warrack Medical Center Hospital	<input type="checkbox"/>	<input type="checkbox"/>

Stanislaus County

Del Puerto Hospital‡	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Doctors Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Emanuel Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Memorial Hospital Association	<input type="checkbox"/>	<input type="checkbox"/>
Oak Valley District Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Stanislaus Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Sutter County

Fremont Medical Center‡	<input type="checkbox"/>	<input type="checkbox"/>
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- ⊕ Significantly better than expected (p<0.01)
- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected (p<0.01)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

Tehama County

St. Elizabeth Community Hospital

Trinity County

Trinity Hospital

Tulare County

Alta Hospital District

Kaweah Delta Health Care District‡

Lindsay District Hospital

Memorial Hospital at Exeter

Sierra View District Hospital

Tulare District Healthcare System‡

Tuolumne County

Sonora Community Hospital

Tuolumne General Hospital

⊕ Significantly better than expected (p<0.01)
☑ No deaths reported; too few cases for statistical significance
☐ Not significantly different than expected

● Significantly worse than expected (p<0.01)
× Hospital excluded due to data limitations
‡ Comment letter received from hospital or hospital system

Ventura County

Columbia Los Robles Hospital Medical Center	<input type="checkbox"/>	<input type="checkbox"/>
Community Memorial Hospital-San Buenaventura	<input type="checkbox"/>	<input type="checkbox"/>
Ojai Valley Community Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Santa Paula Memorial Hospital	<input type="checkbox"/>	<input type="checkbox"/>
Simi Valley Hospital & Health Care Services	<input type="checkbox"/>	<input type="checkbox"/>
St. John's Pleasant Valley Hospital	<input type="checkbox"/>	<input type="checkbox"/>
St. John's Regional Medical Center‡	●	<input type="checkbox"/>
Ventura County Medical Center	<input type="checkbox"/>	<input type="checkbox"/>

Yolo County

Sutter Davis Hospital....	<input type="checkbox"/>	<input type="checkbox"/>
Woodland Healthcare	<input type="checkbox"/>	<input type="checkbox"/>

Yuba County

Rideout Memorial Hospital‡	<input type="checkbox"/>	<input type="checkbox"/>
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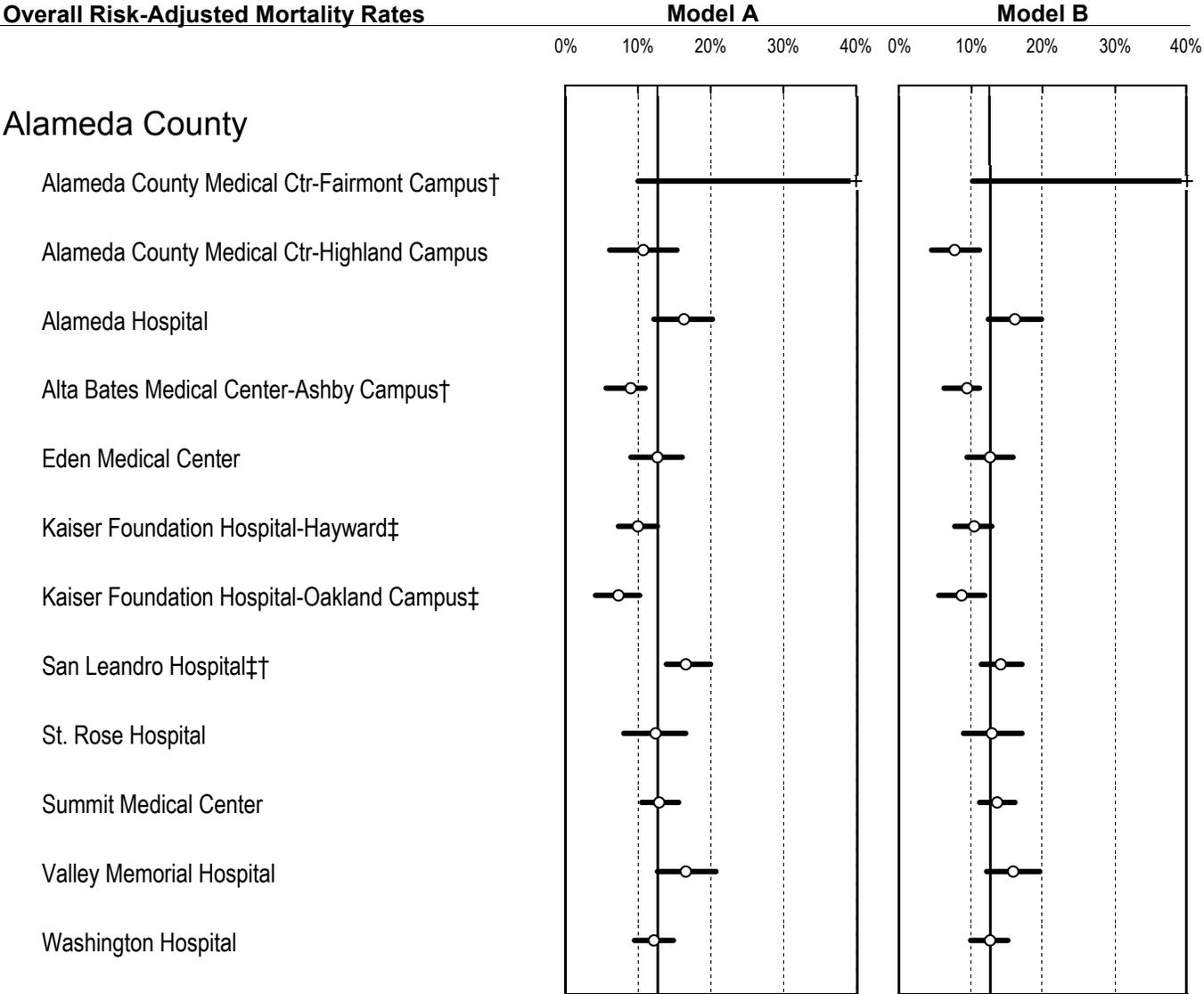
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- ☑ No deaths reported; too few cases for statistical significance
- ☐ Not significantly different than expected

- Significantly worse than expected (p<0.01)
- * Hospital excluded due to data limitations
- ‡ Comment letter received from hospital or hospital system

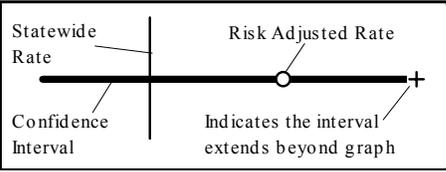
Section
7

Comparing Hospital Rates to the Statewide Rate

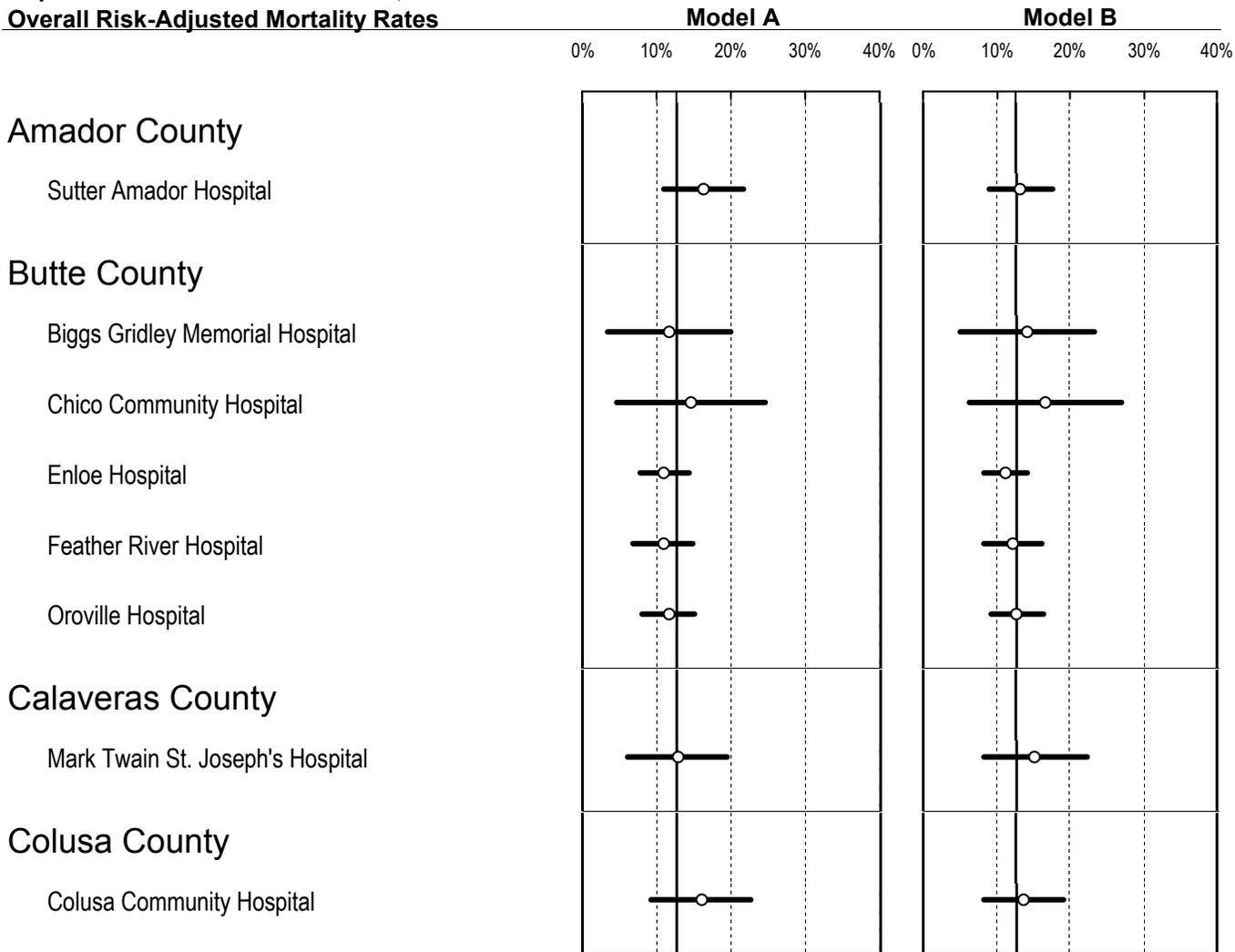
Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates



‡ Hospital sent comment letter.
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.

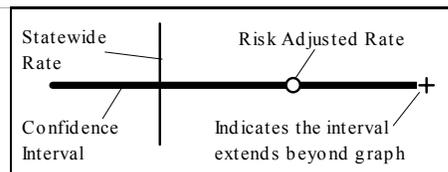


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

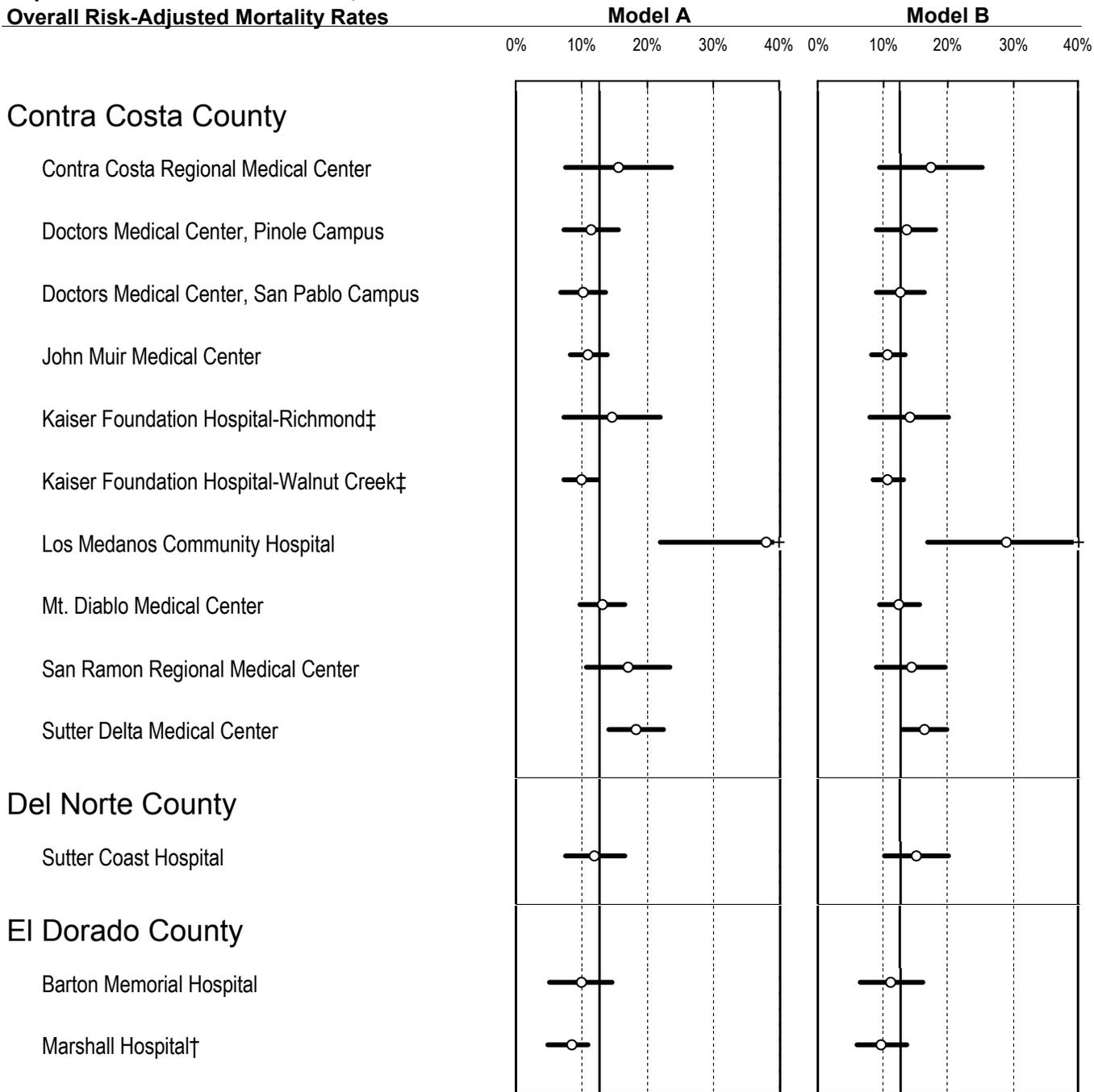


‡ Hospital sent comment letter.

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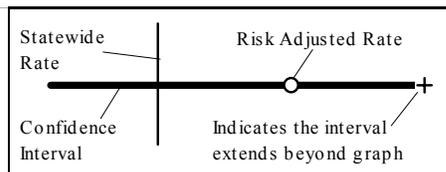


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

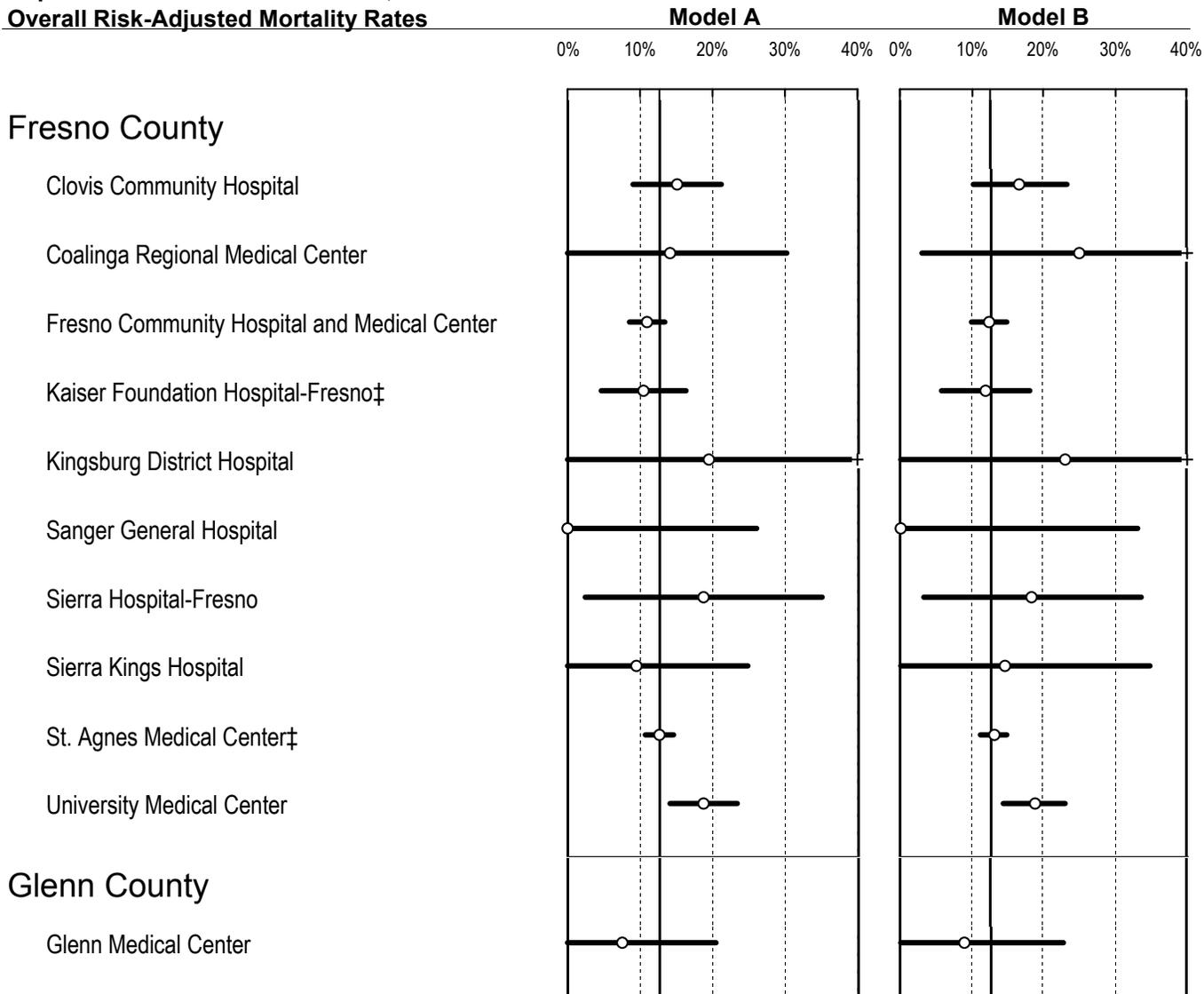


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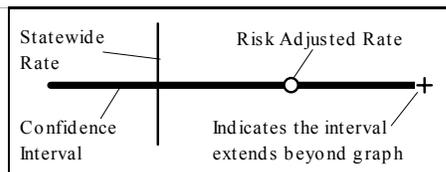


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

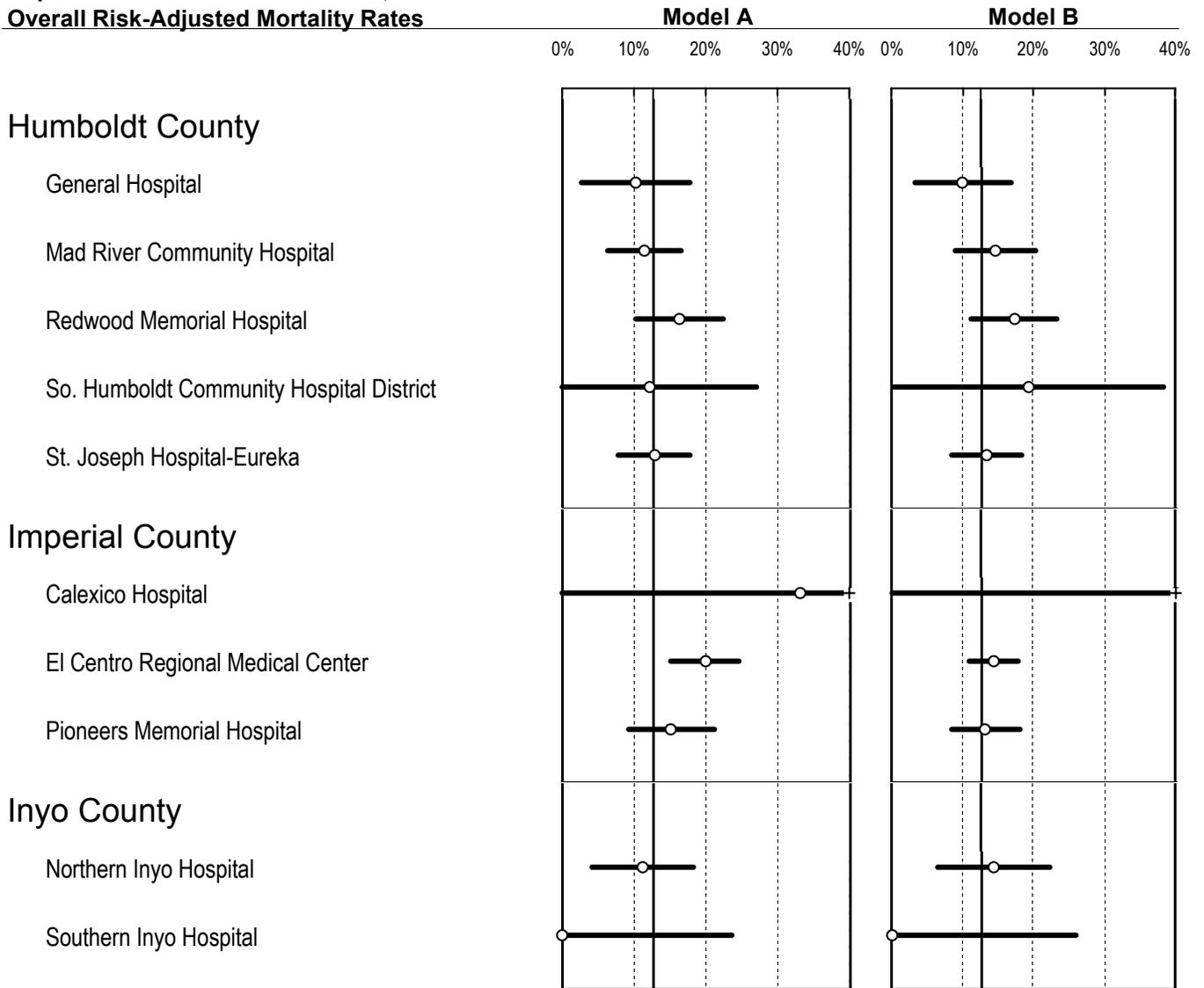


‡ Hospital sent comment letter.

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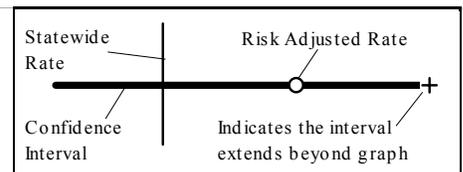


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

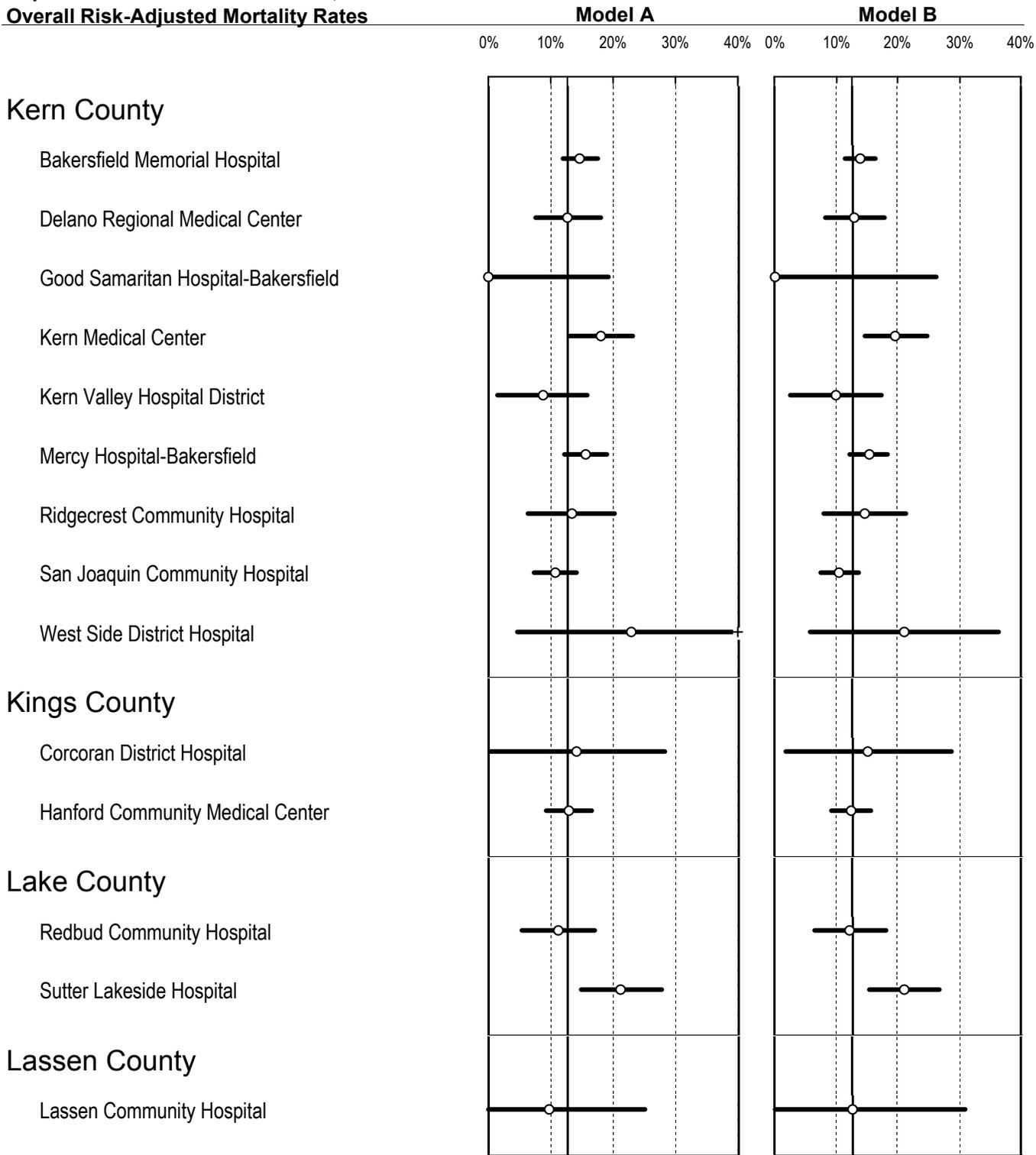


‡ Hospital sent comment letter.

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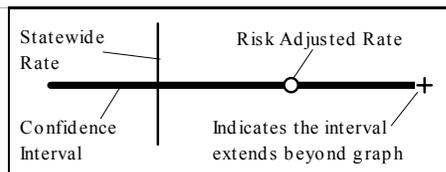


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

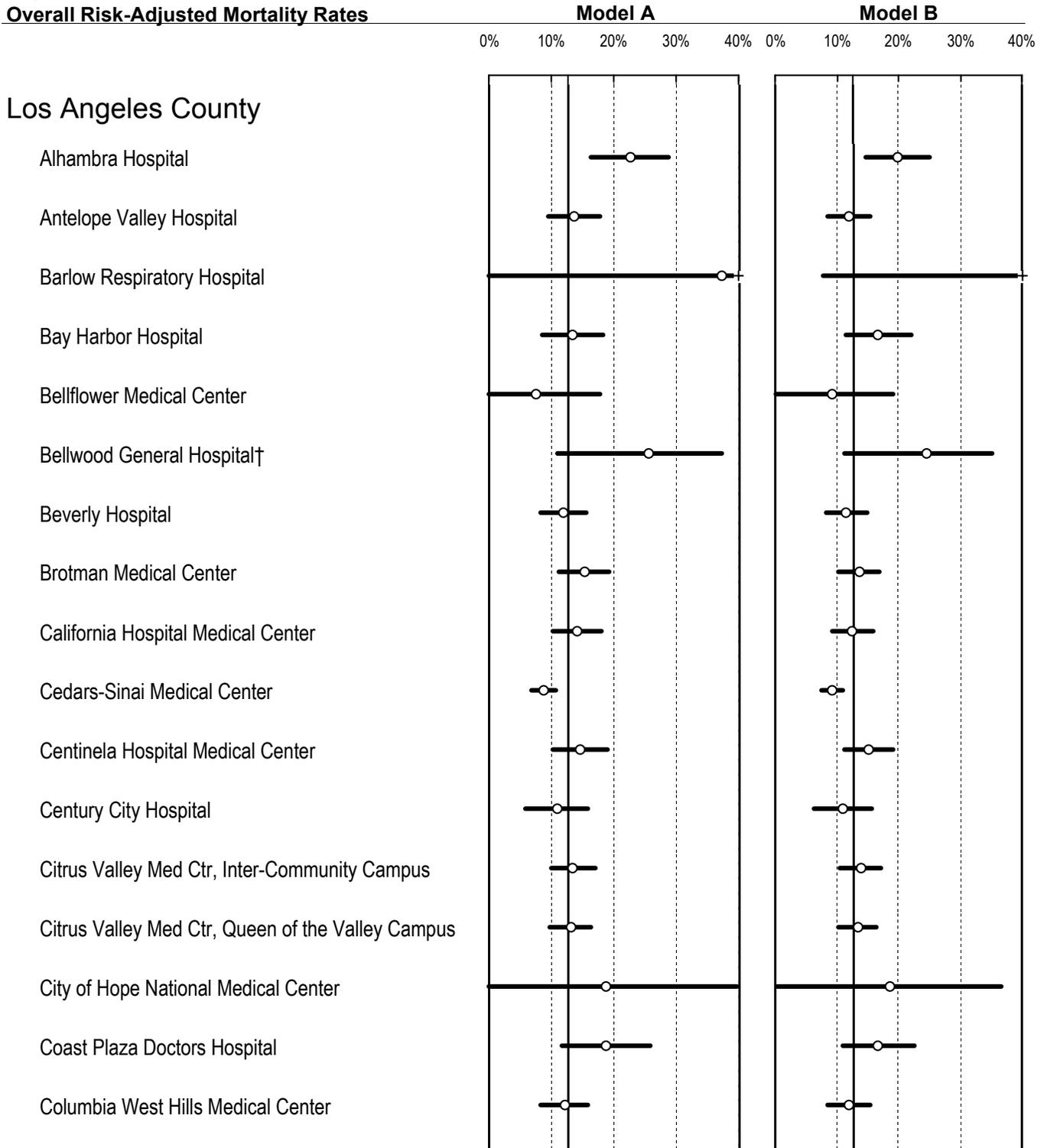


‡ Hospital sent comment letter.

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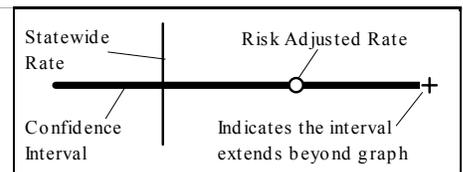


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates



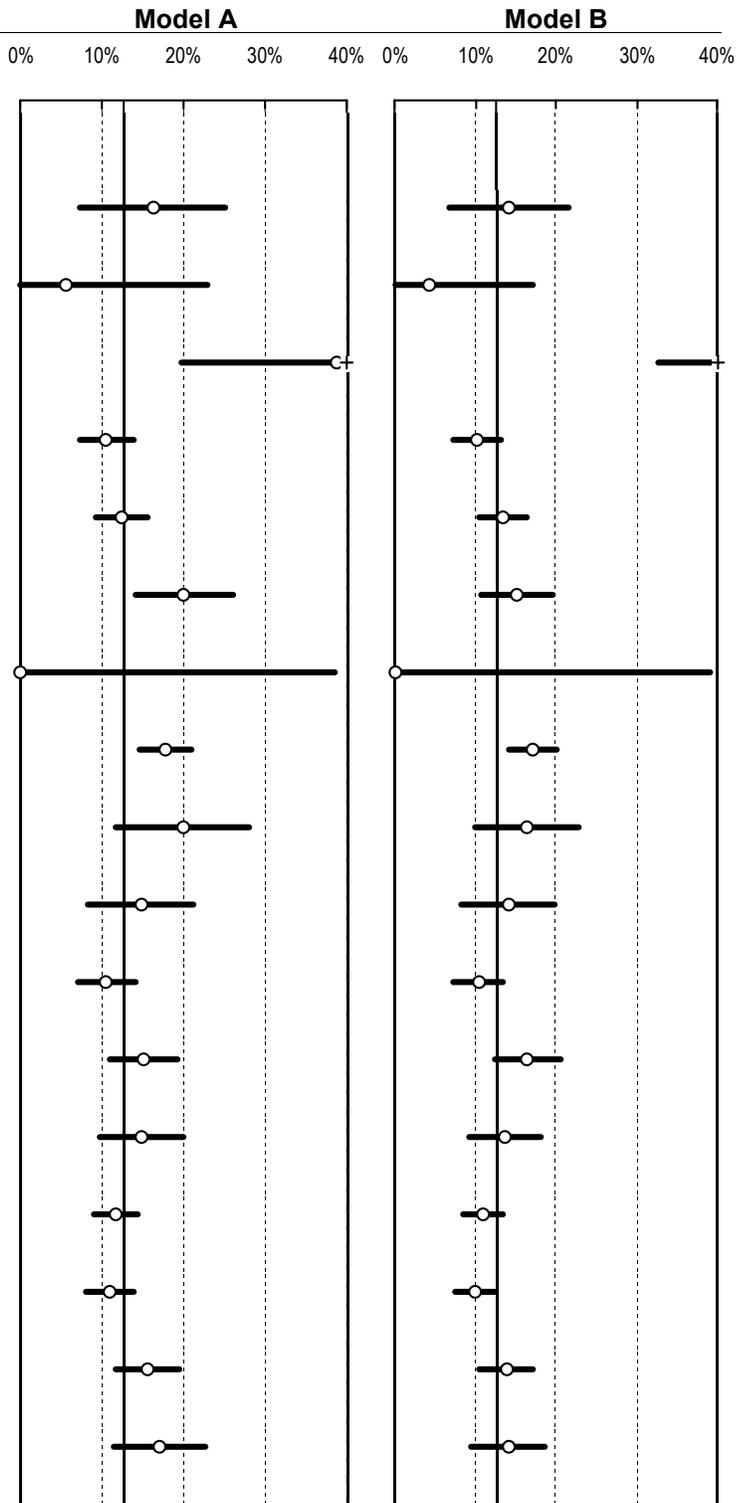
‡ Hospital sent comment letter.

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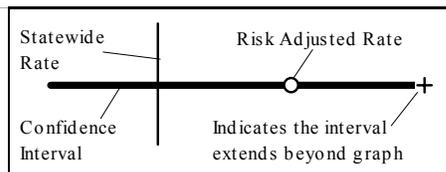
Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

Los Angeles County, Continued

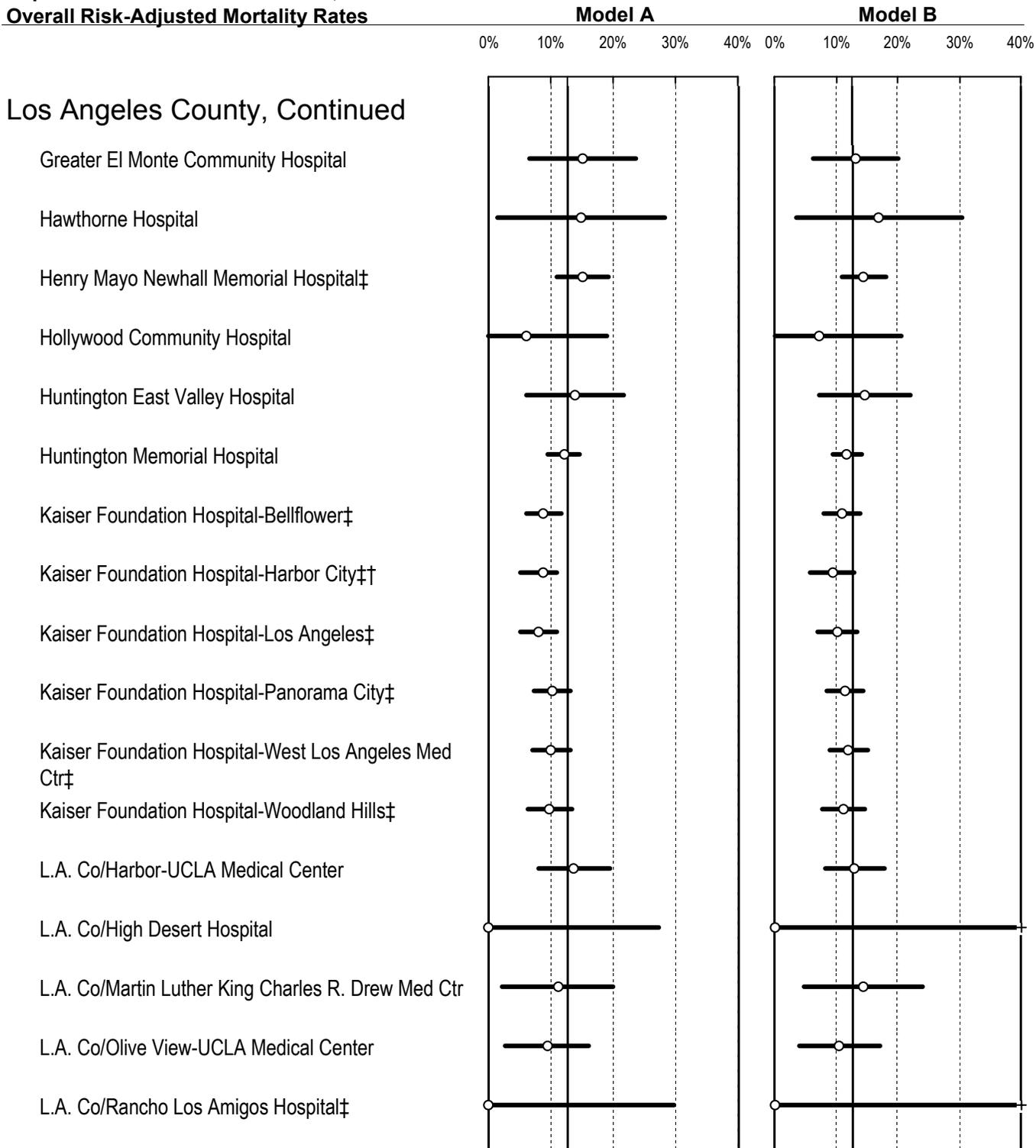


‡ Hospital sent comment letter.

† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.

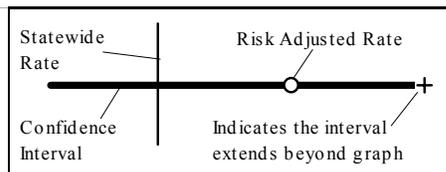


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

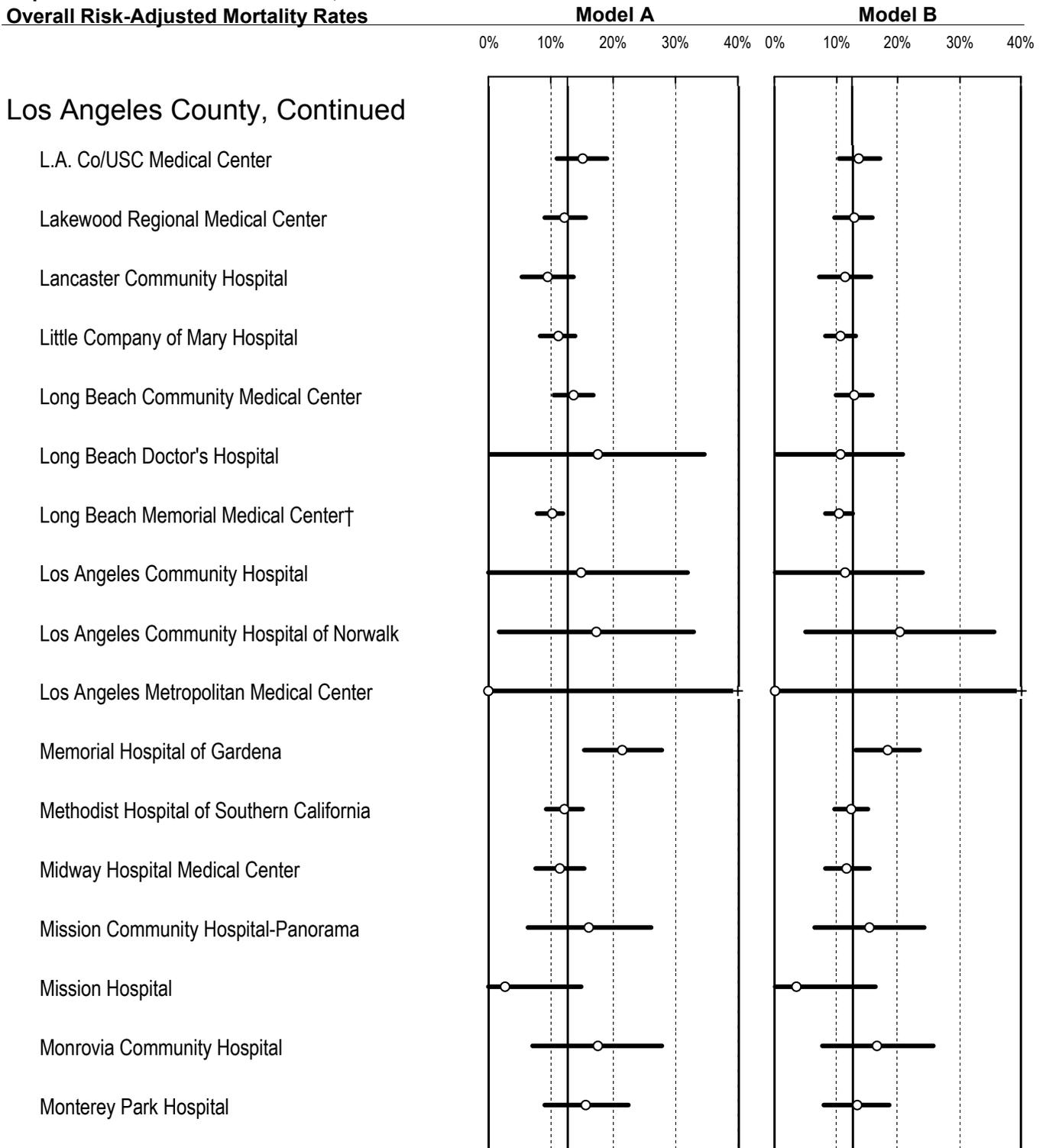


‡ Hospital sent comment letter.

† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.

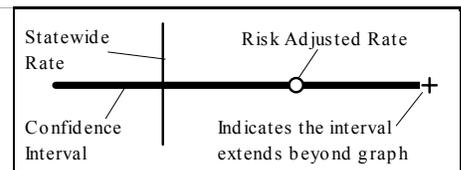


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

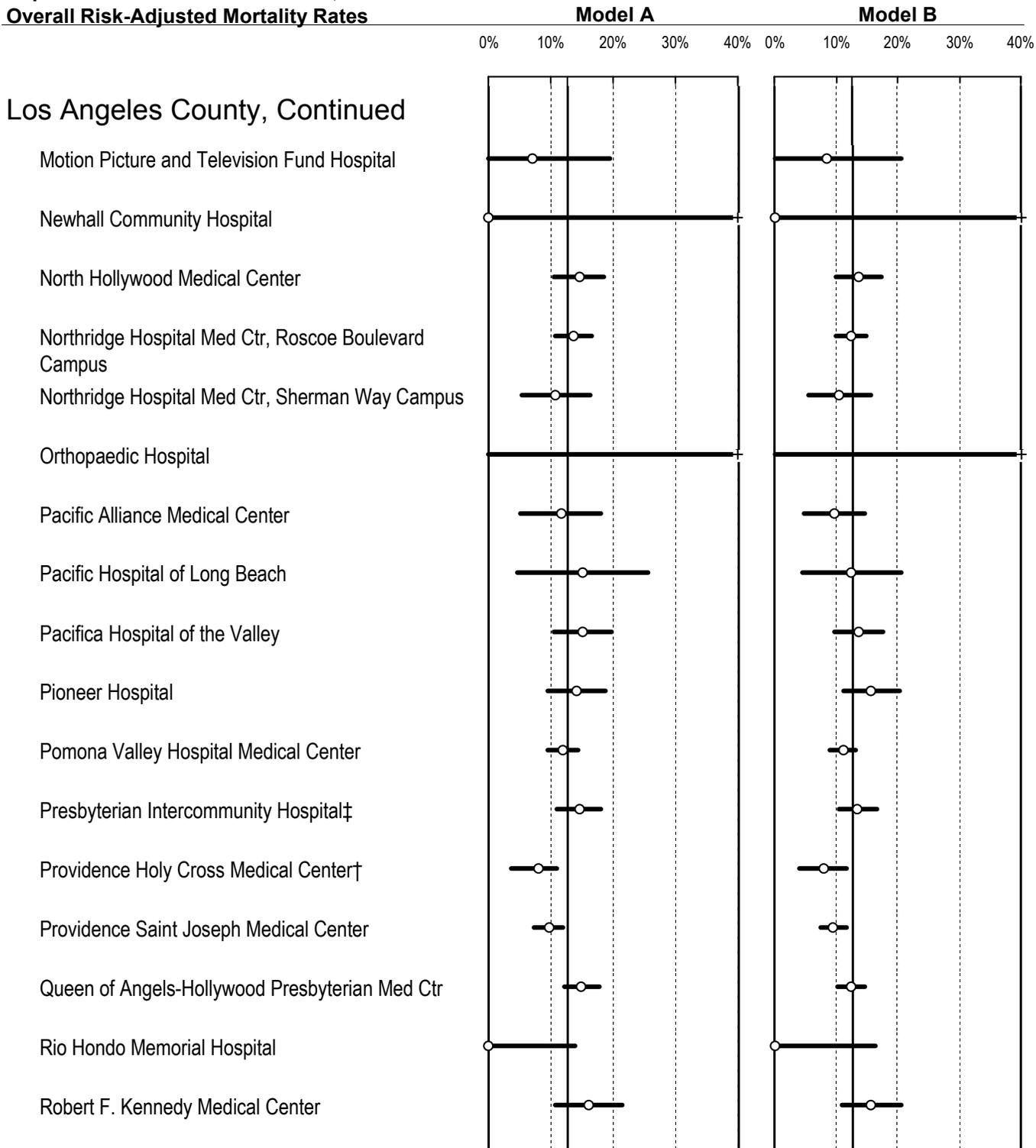


‡ Hospital sent comment letter.

† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.

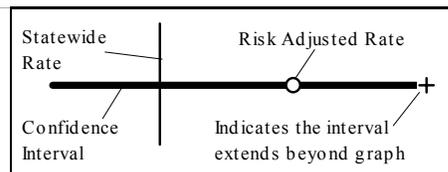


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates



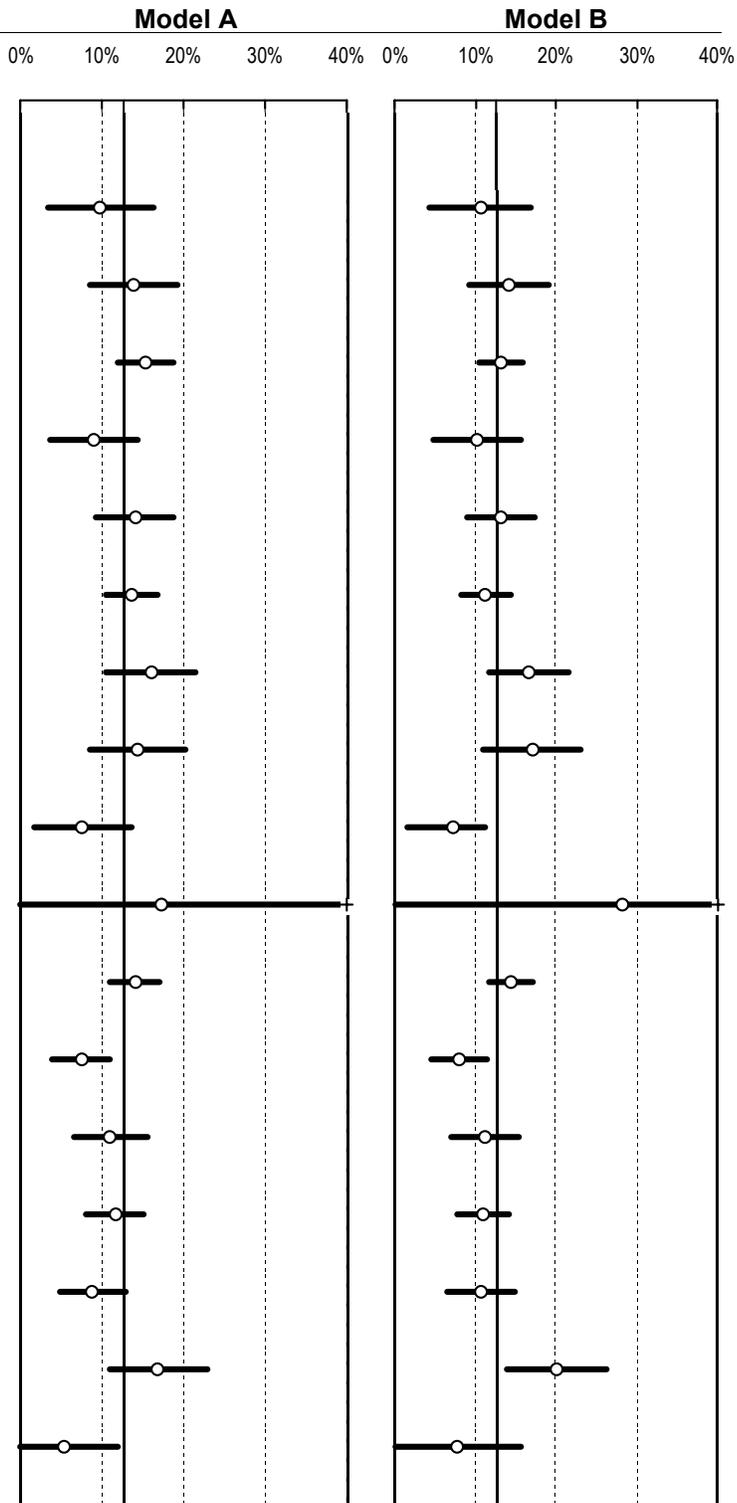
‡ Hospital sent comment letter.

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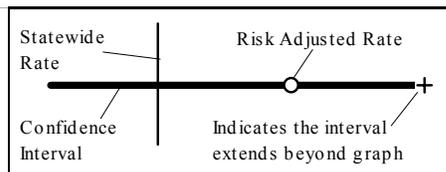
Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

Los Angeles County, Continued

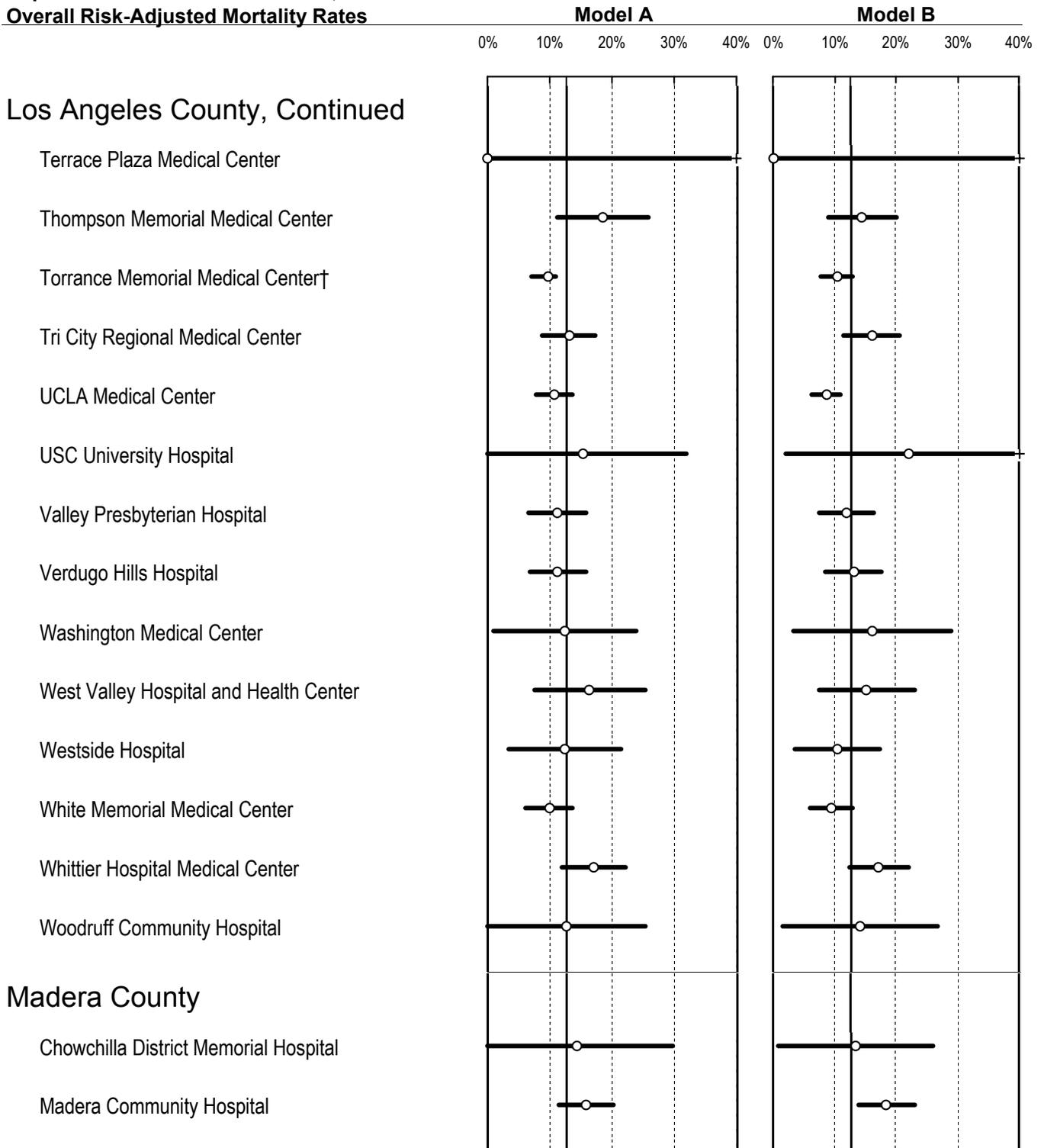


‡ Hospital sent comment letter.

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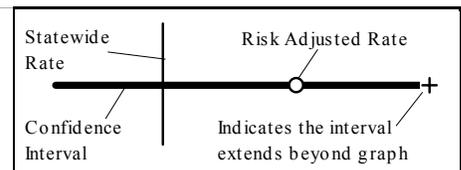


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

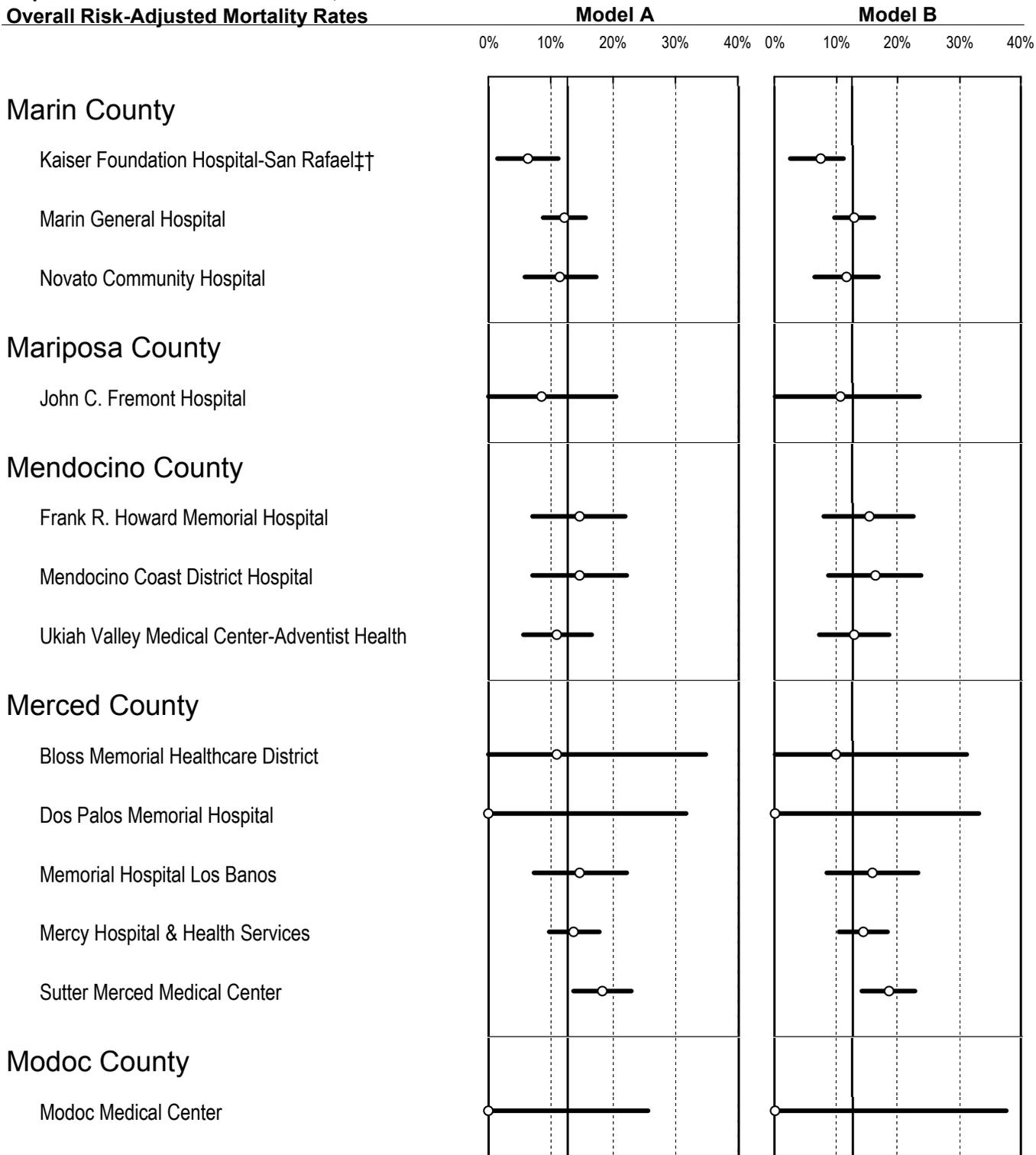


‡ Hospital sent comment letter.

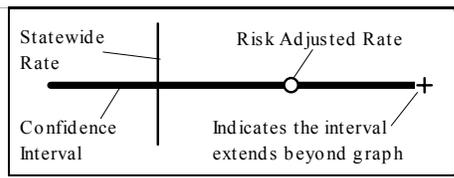
† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.



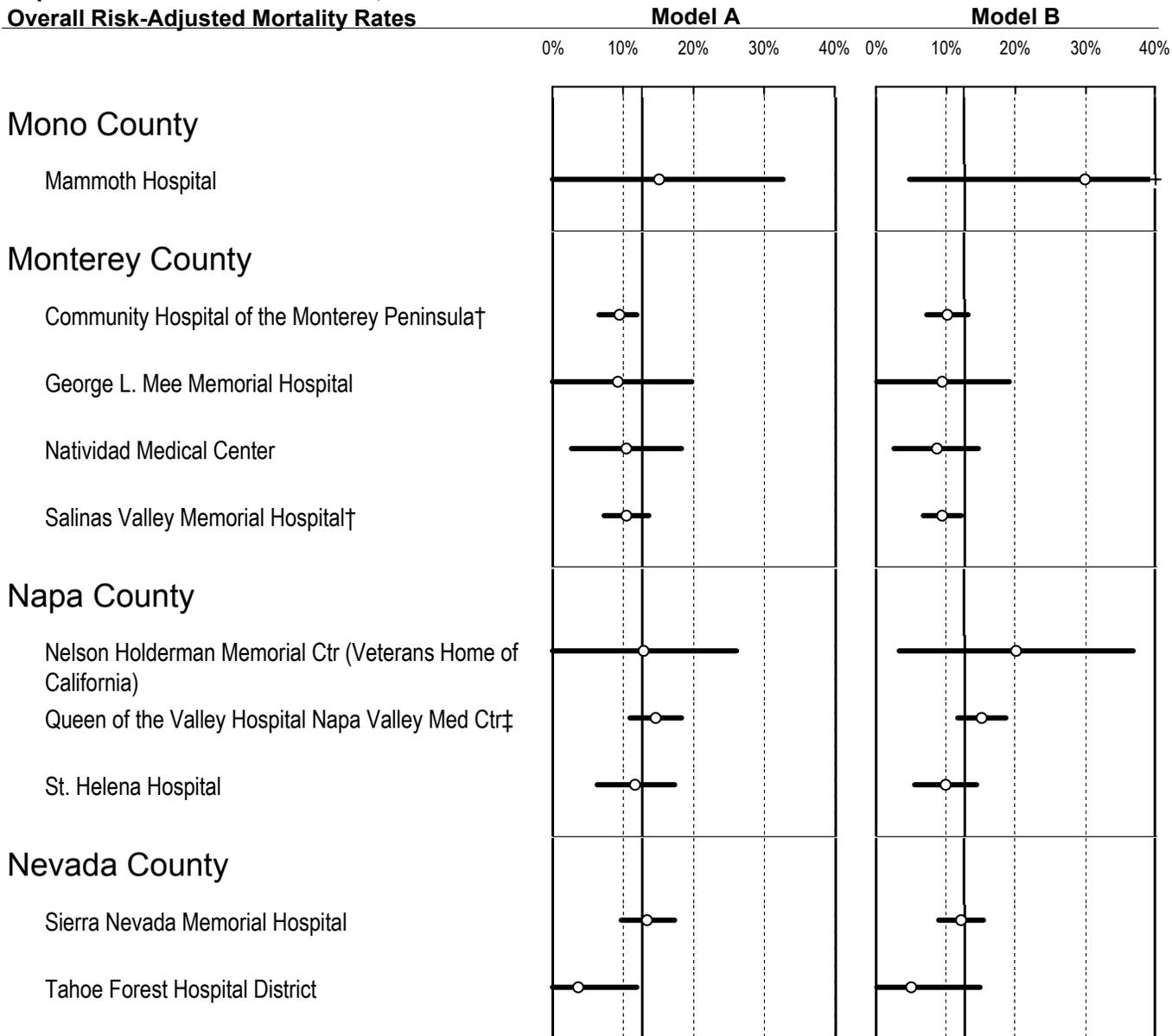
Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates



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 † The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.

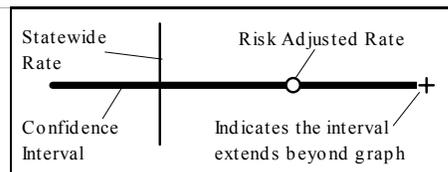


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

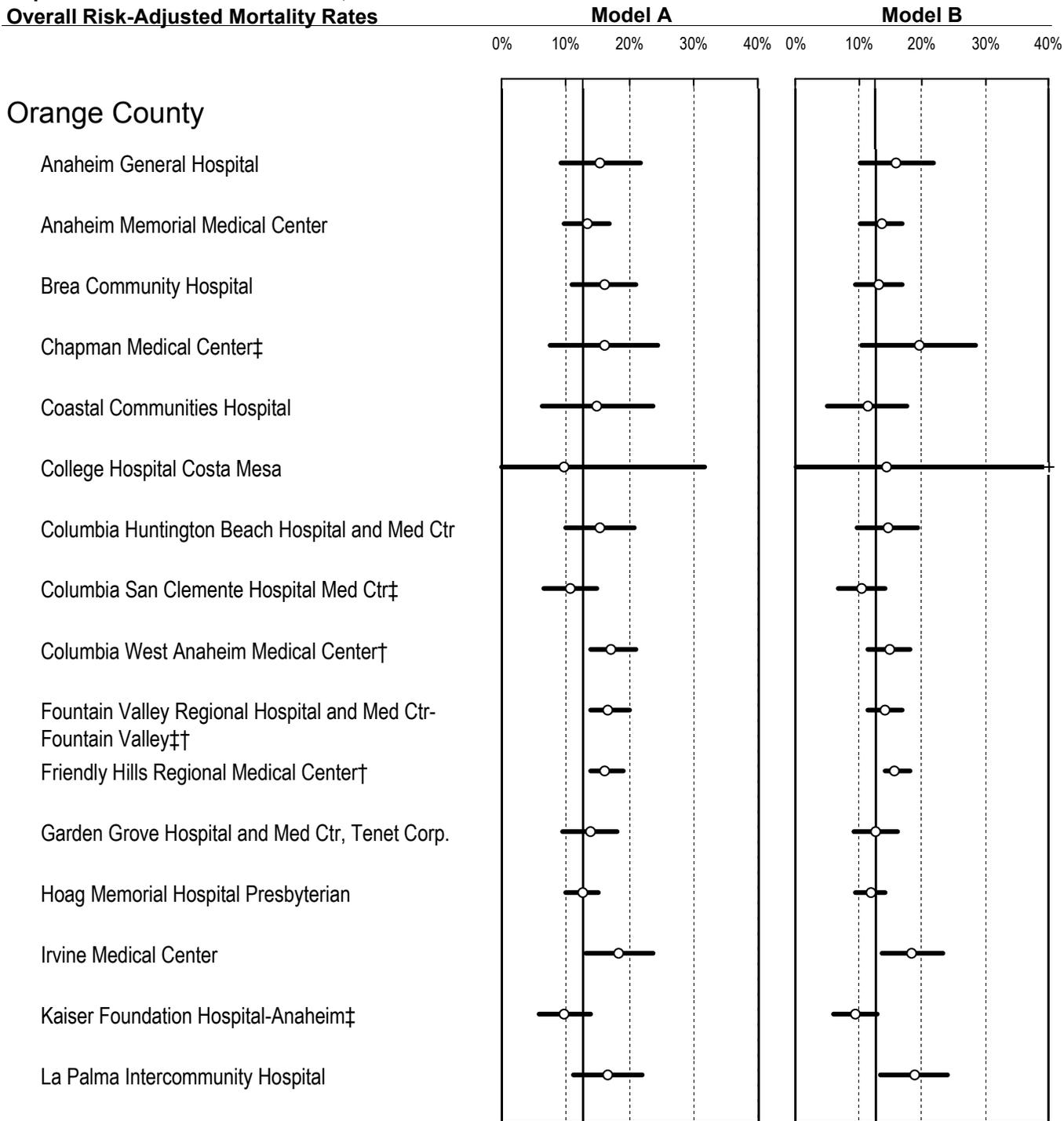


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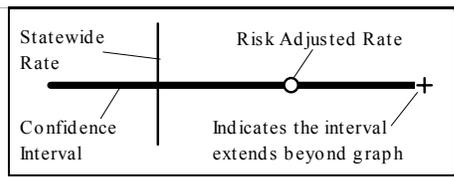


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

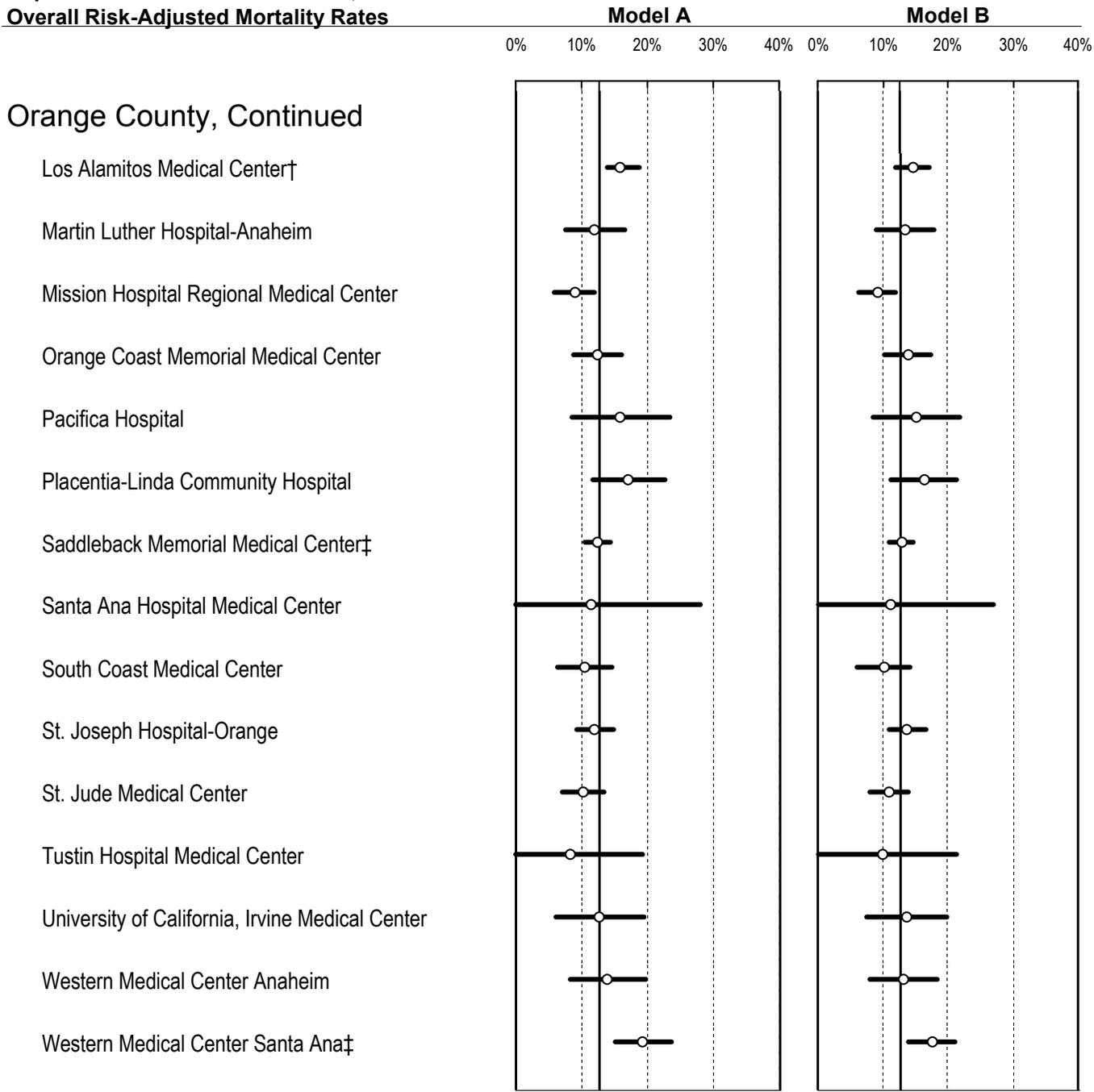


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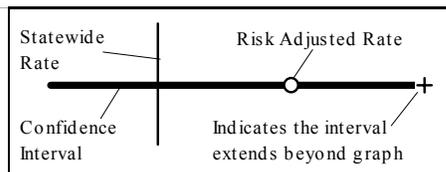


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

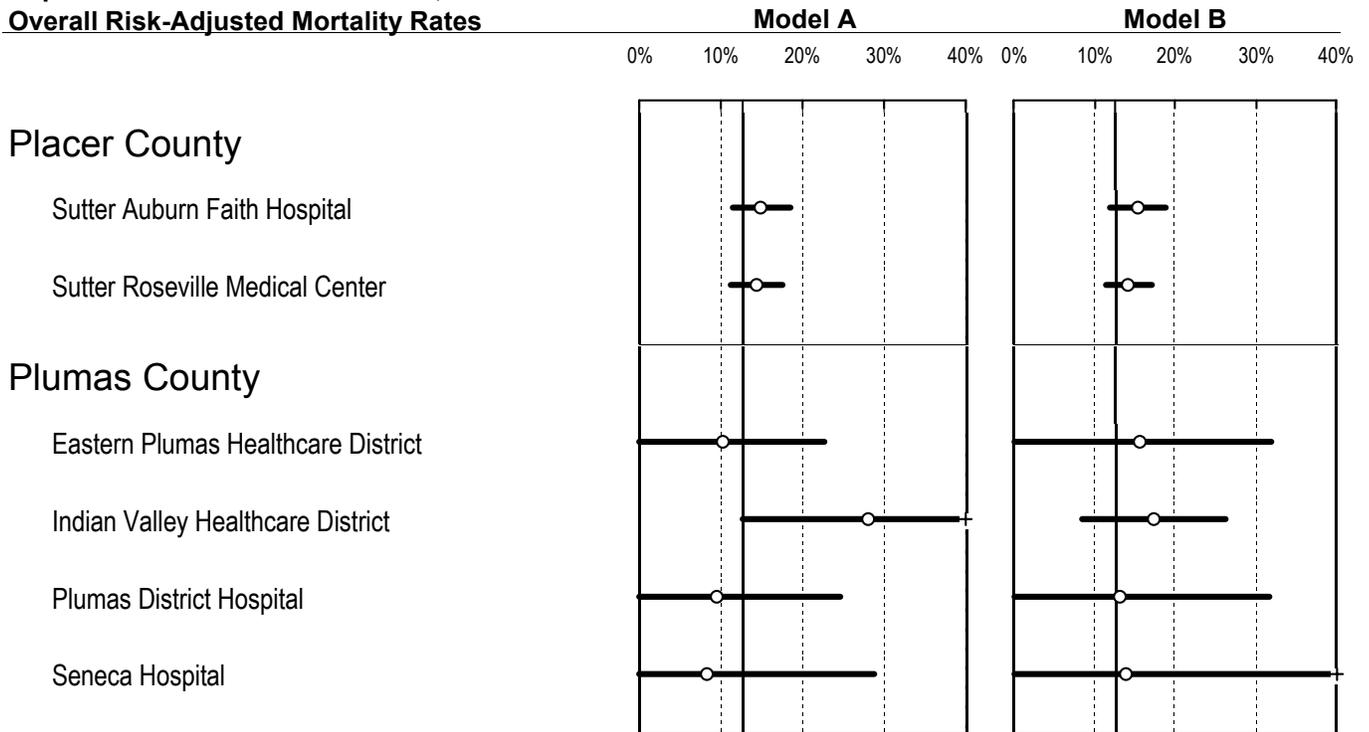


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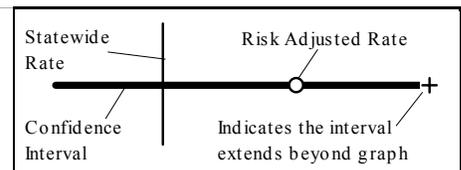


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

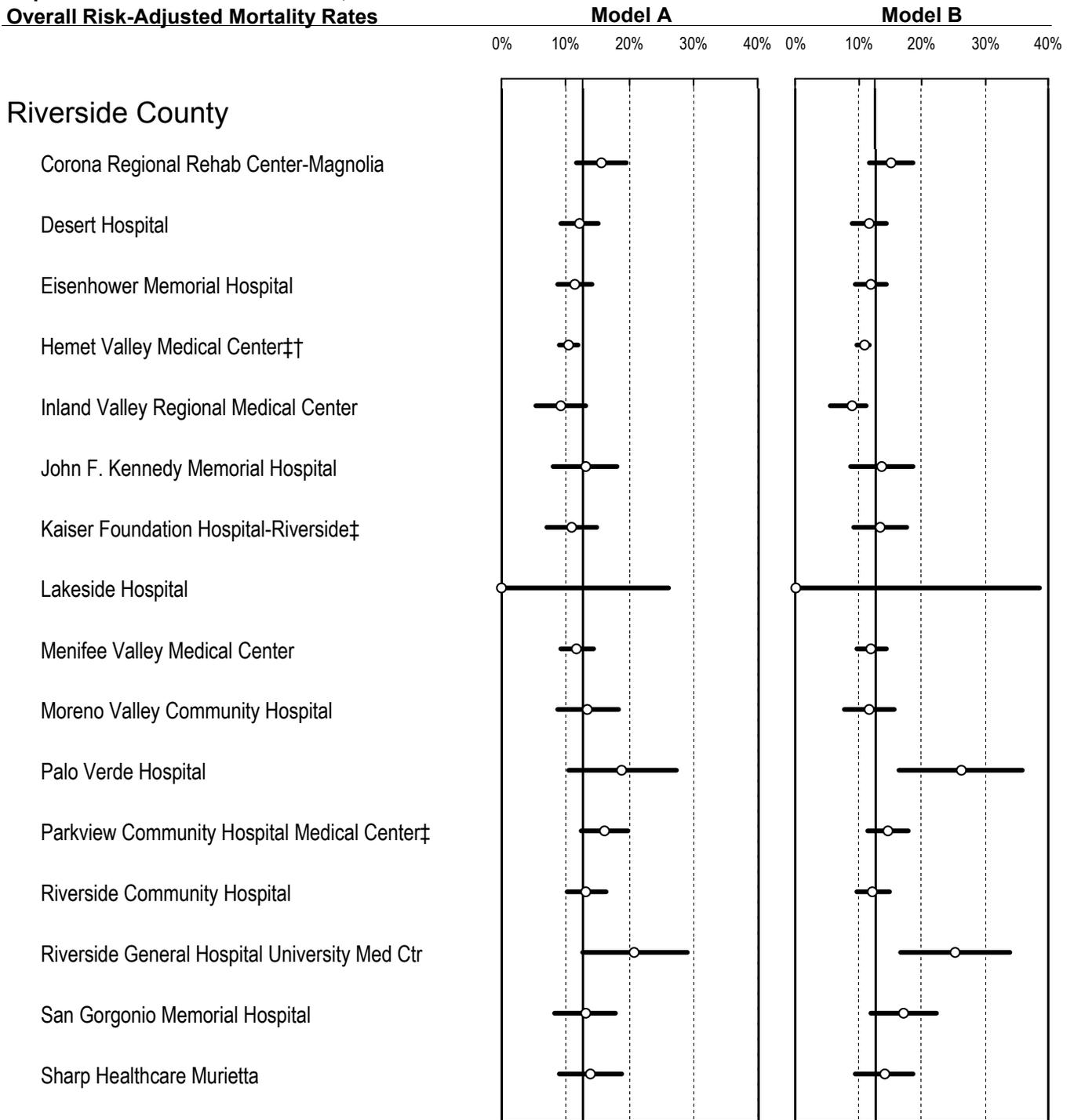


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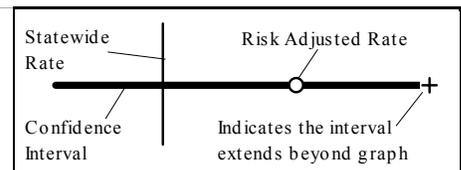


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

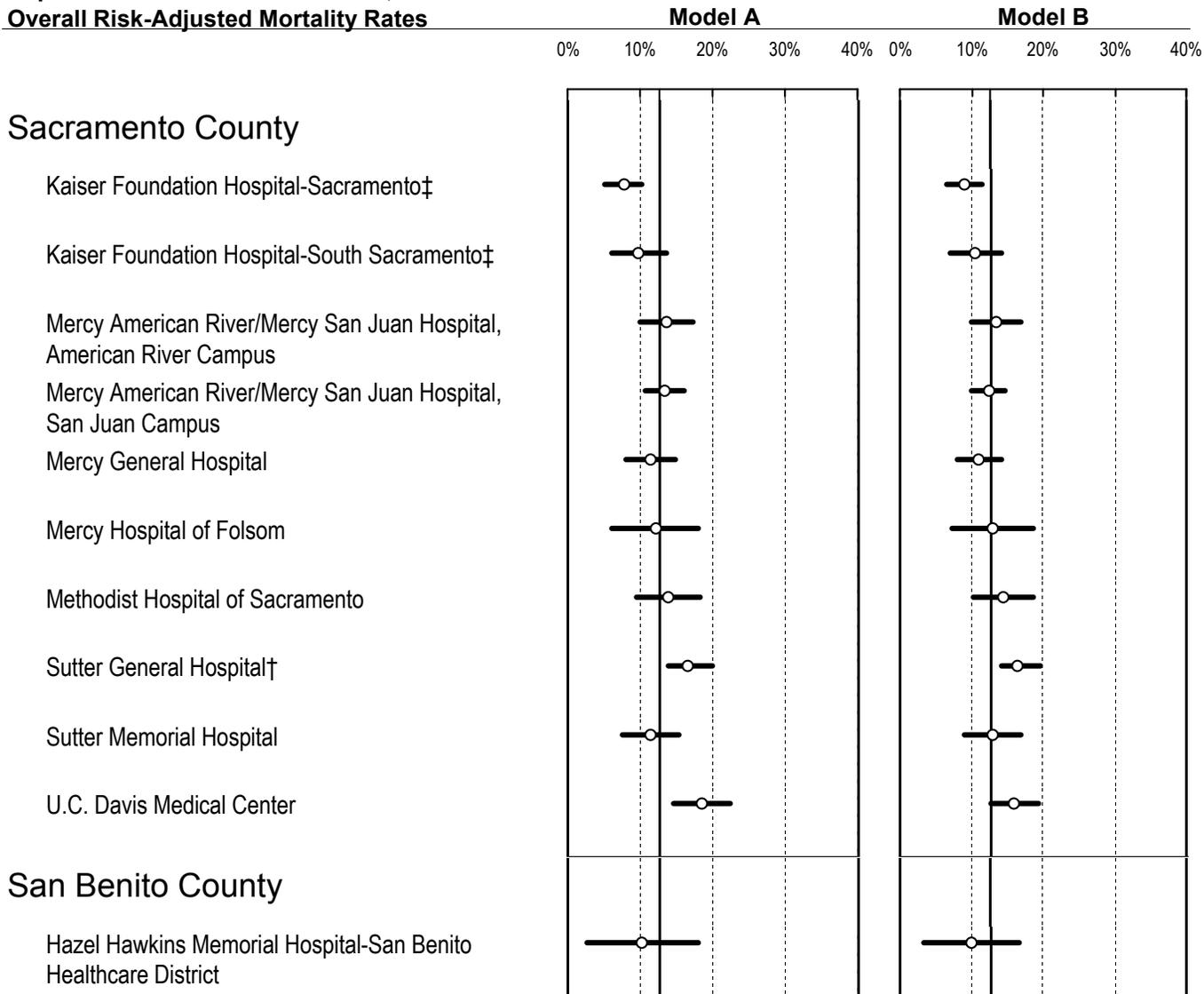


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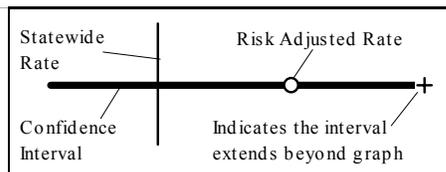


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

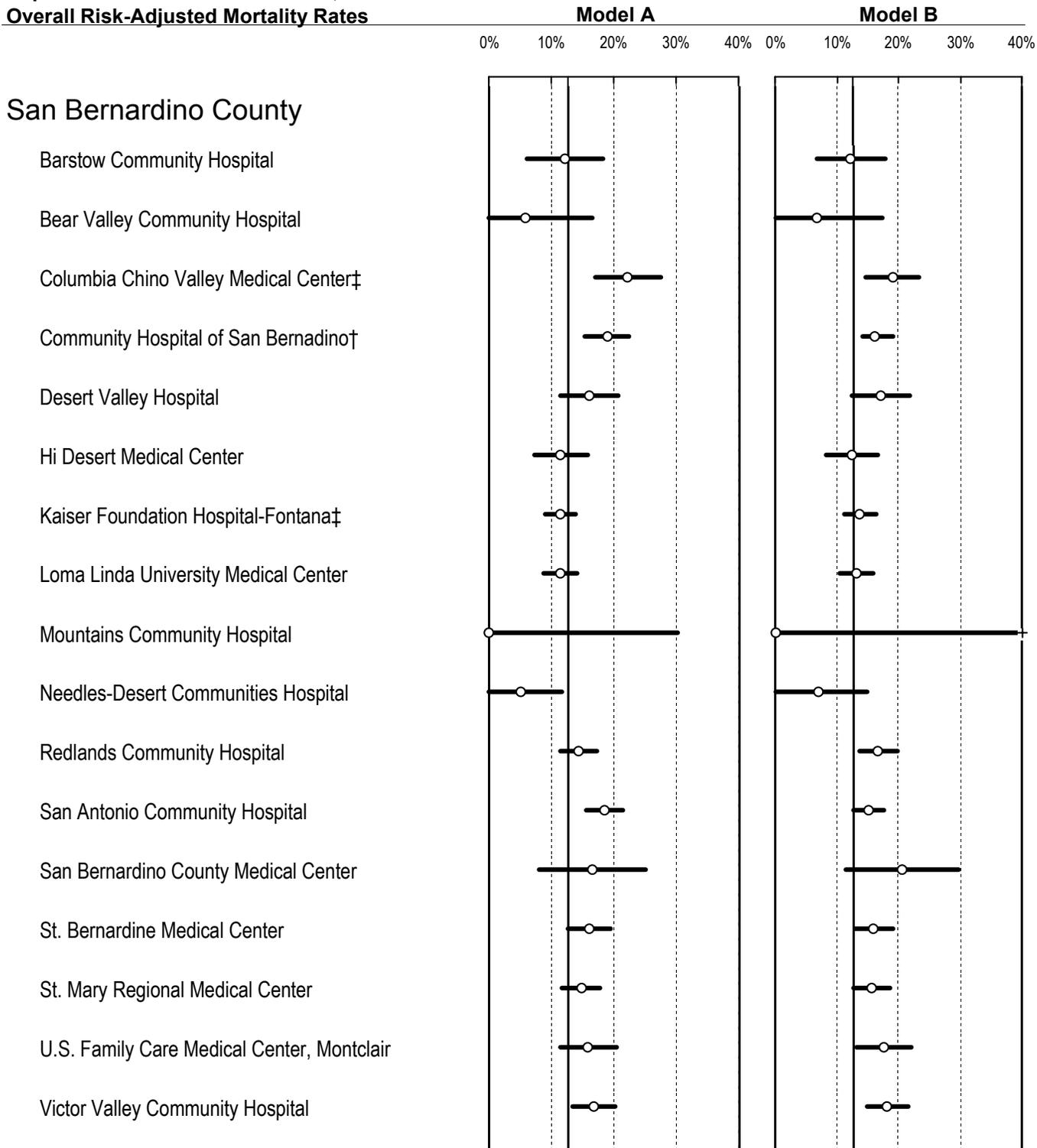


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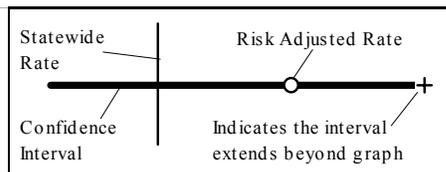


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

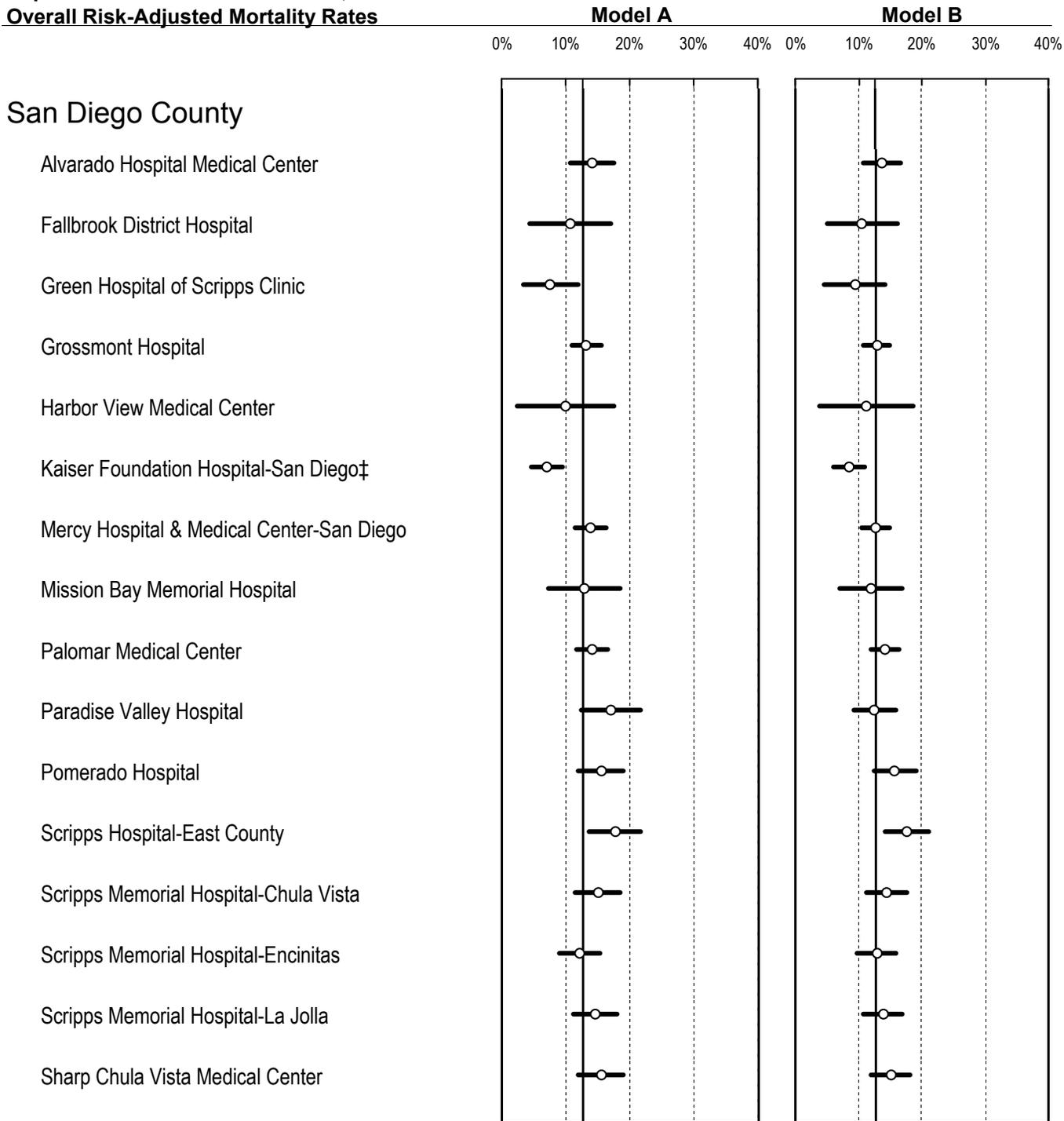


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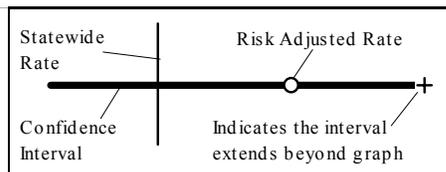


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates



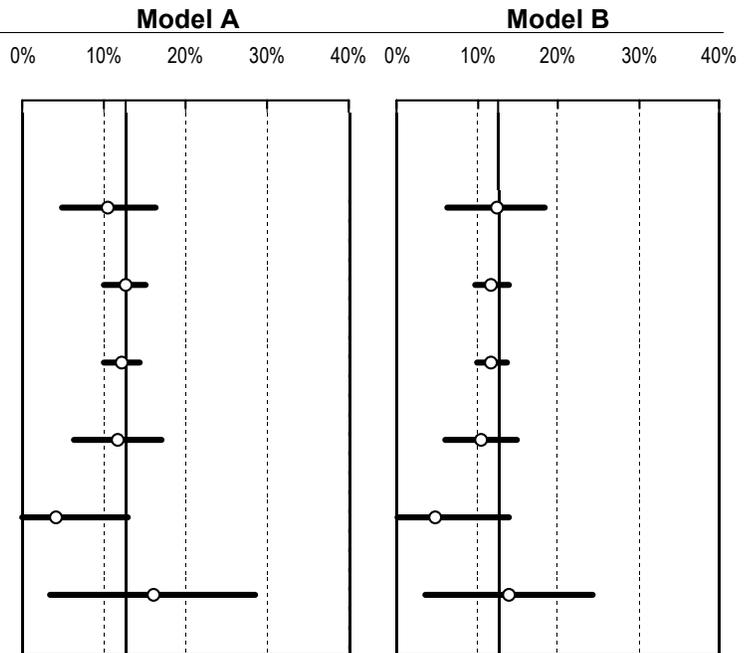
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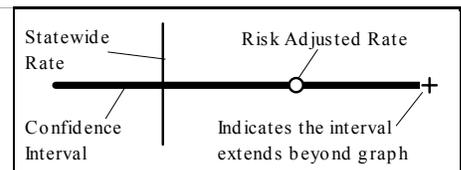
Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

San Diego County, Continued

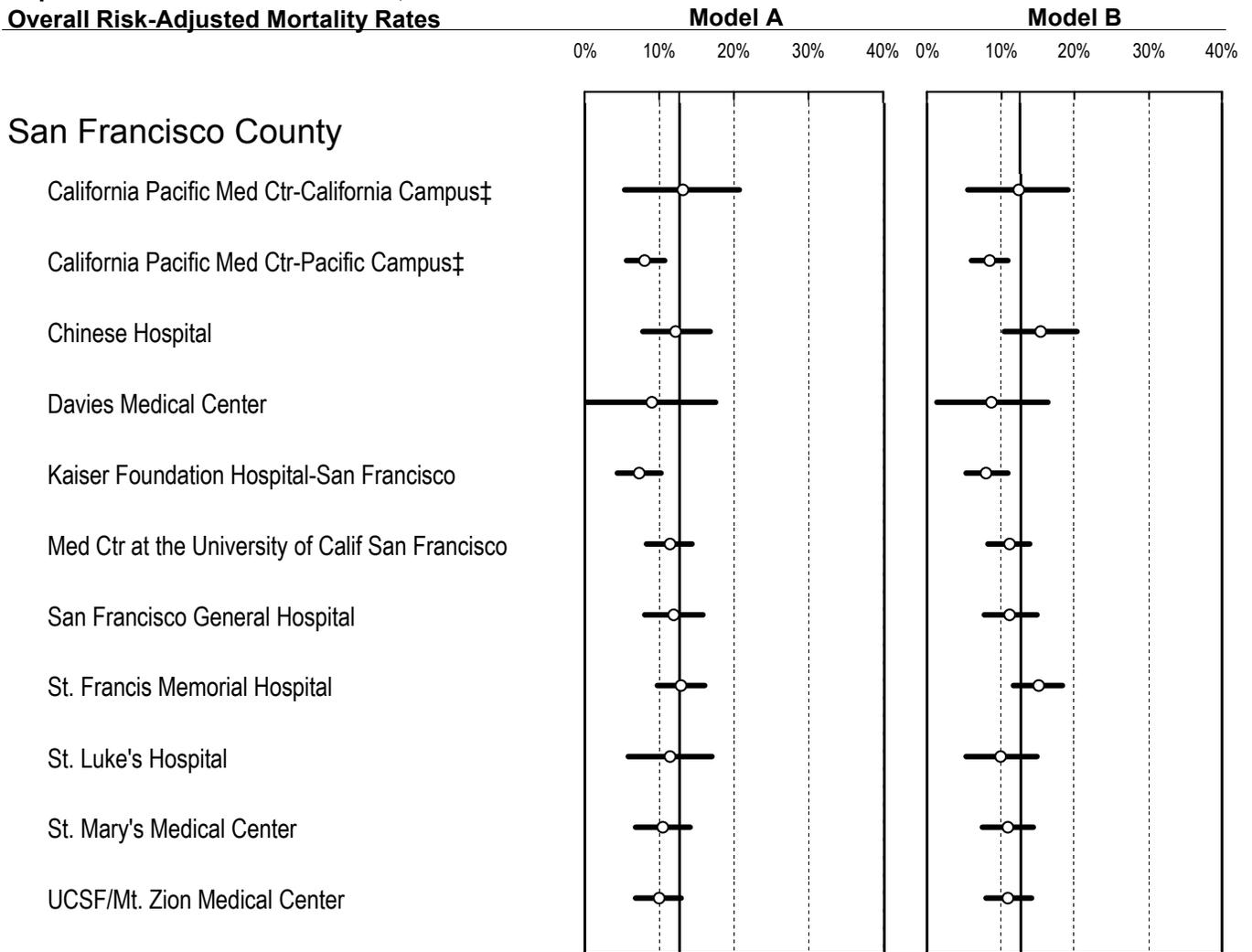


‡ Hospital sent comment letter.

† The estimated confidence limits for one of this hospital's risk-adjusted mortality rates have been adjusted to be consistent with the exact p-values calculated for each hospital, as discussed in Chapter 11, Volume 2, Technical Guide.

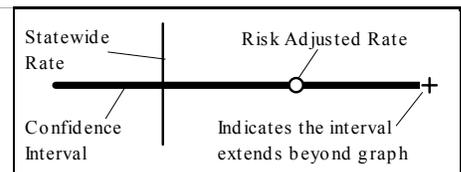


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

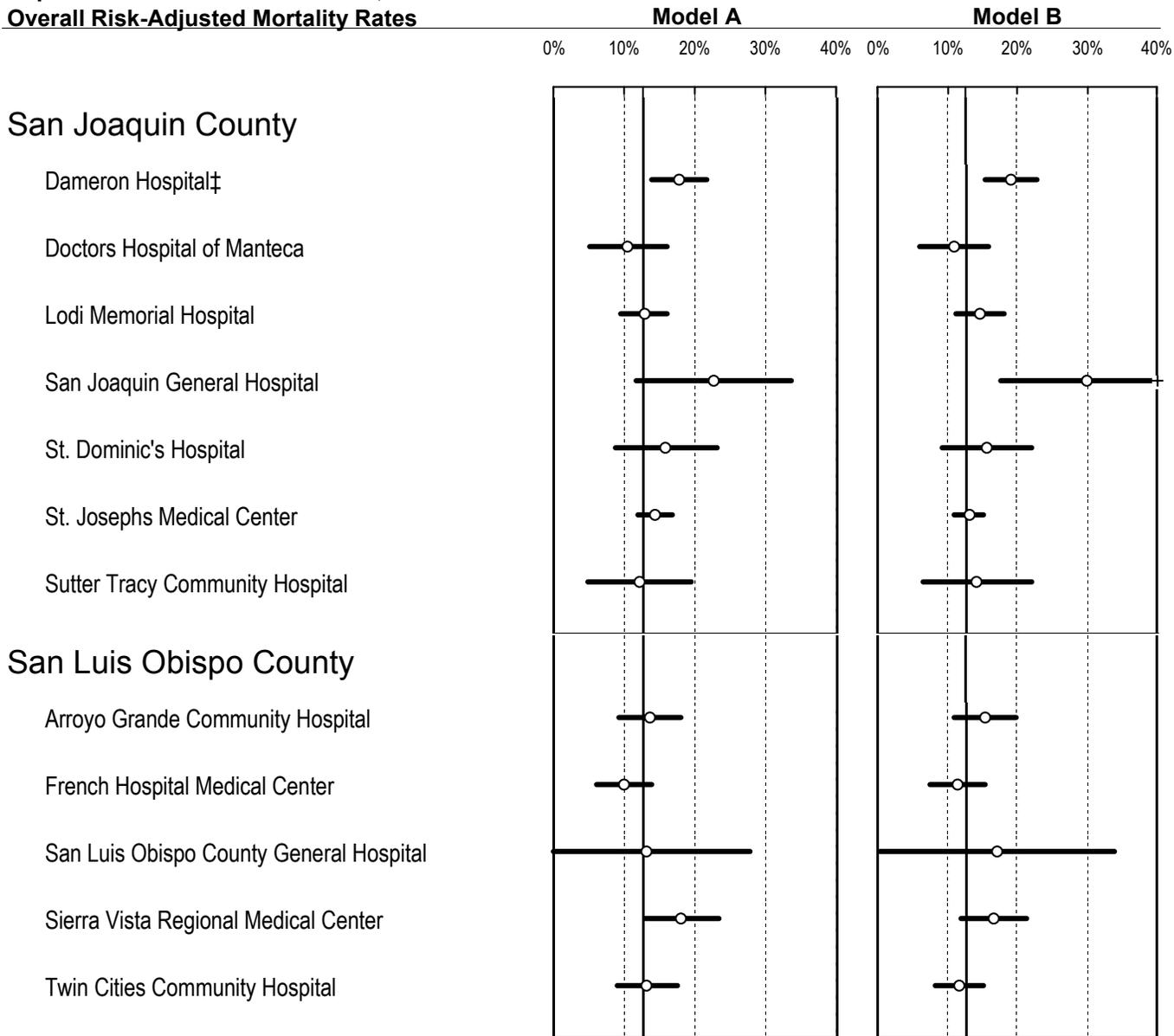


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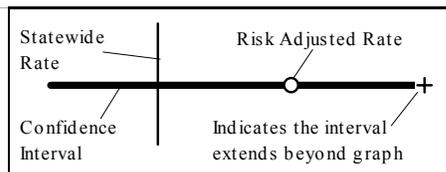


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

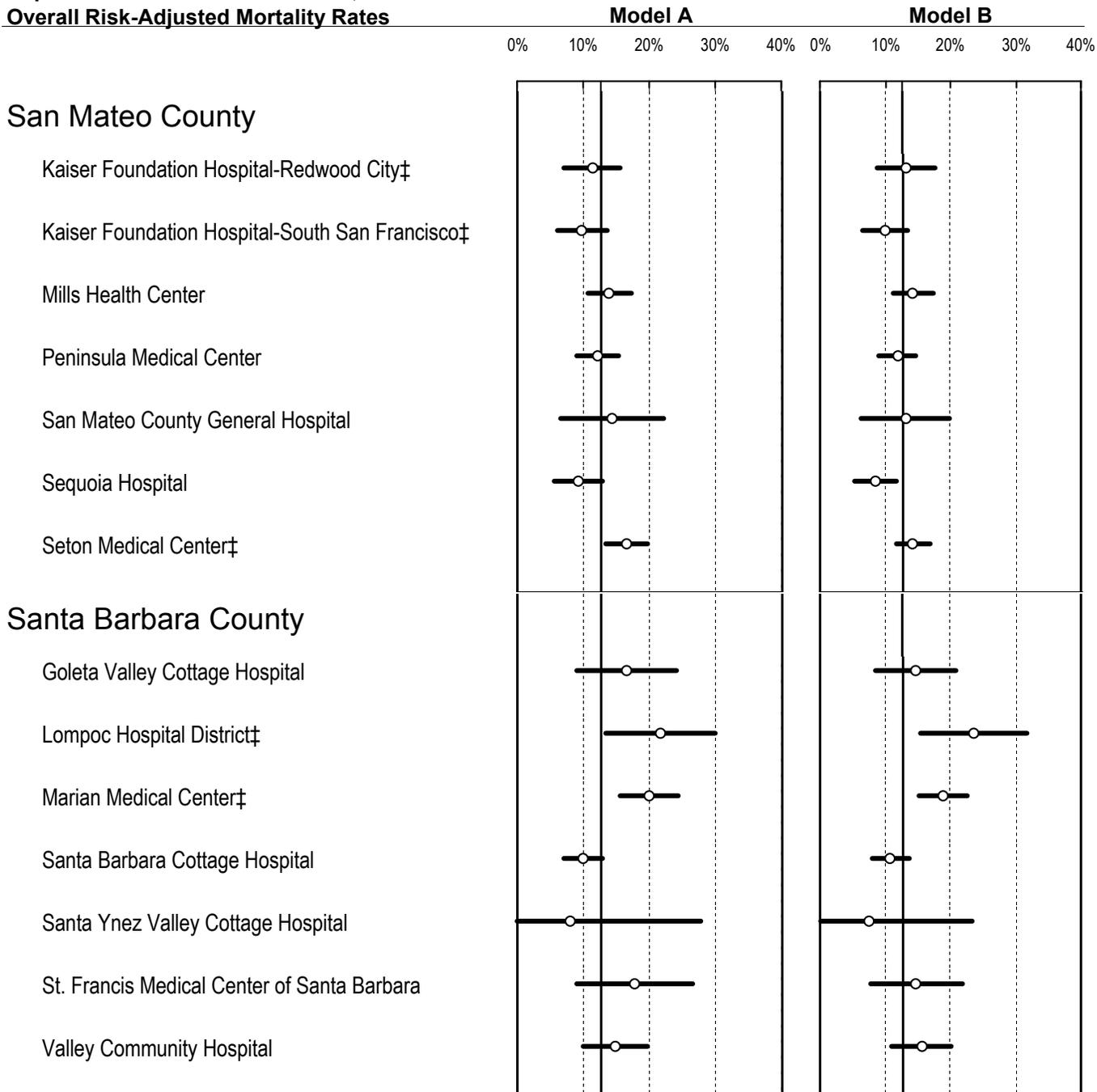


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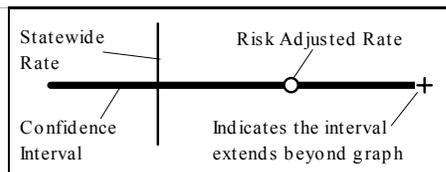


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

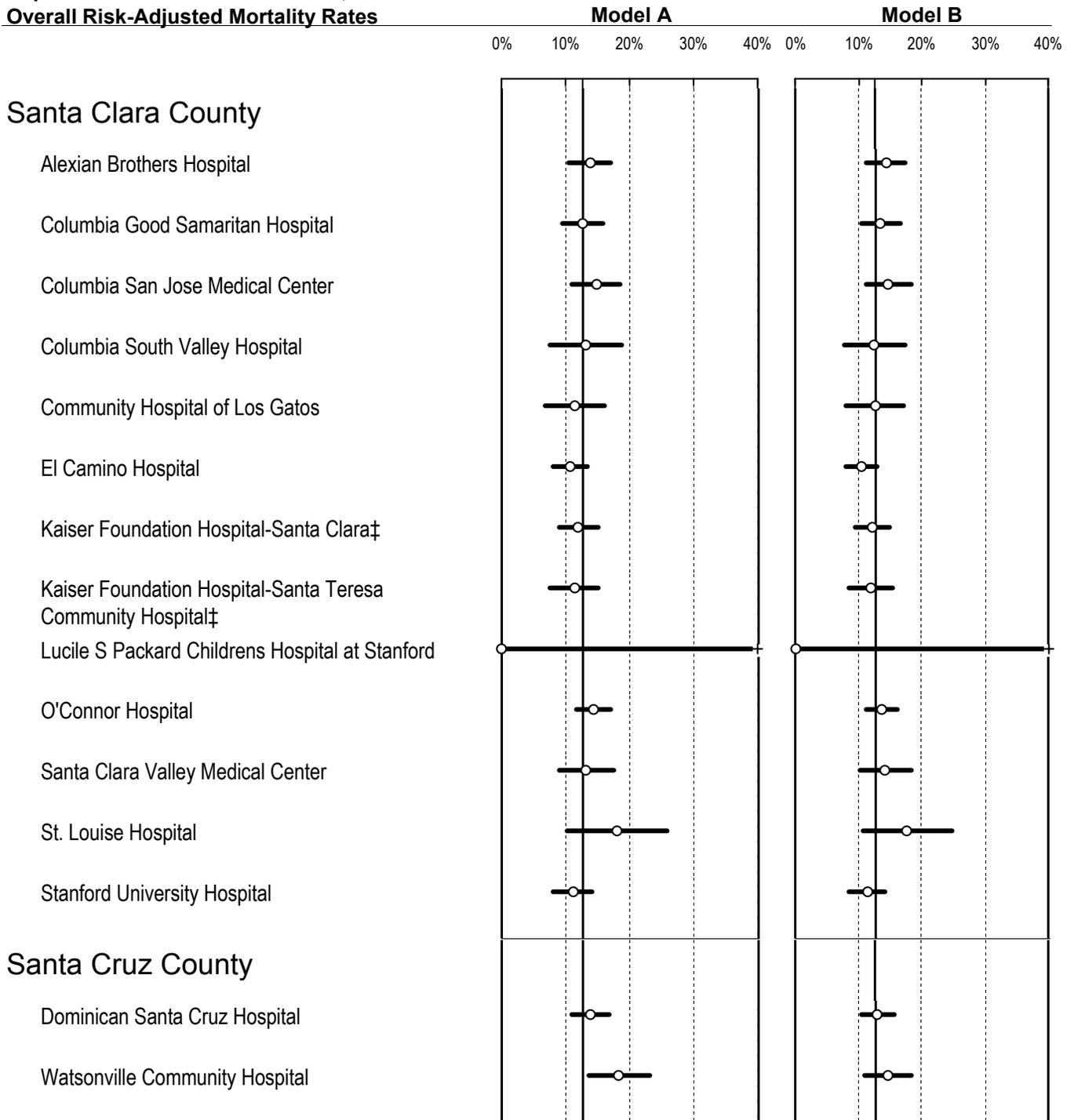


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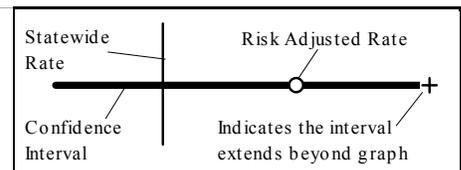


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Overall Risk-Adjusted Mortality Rates

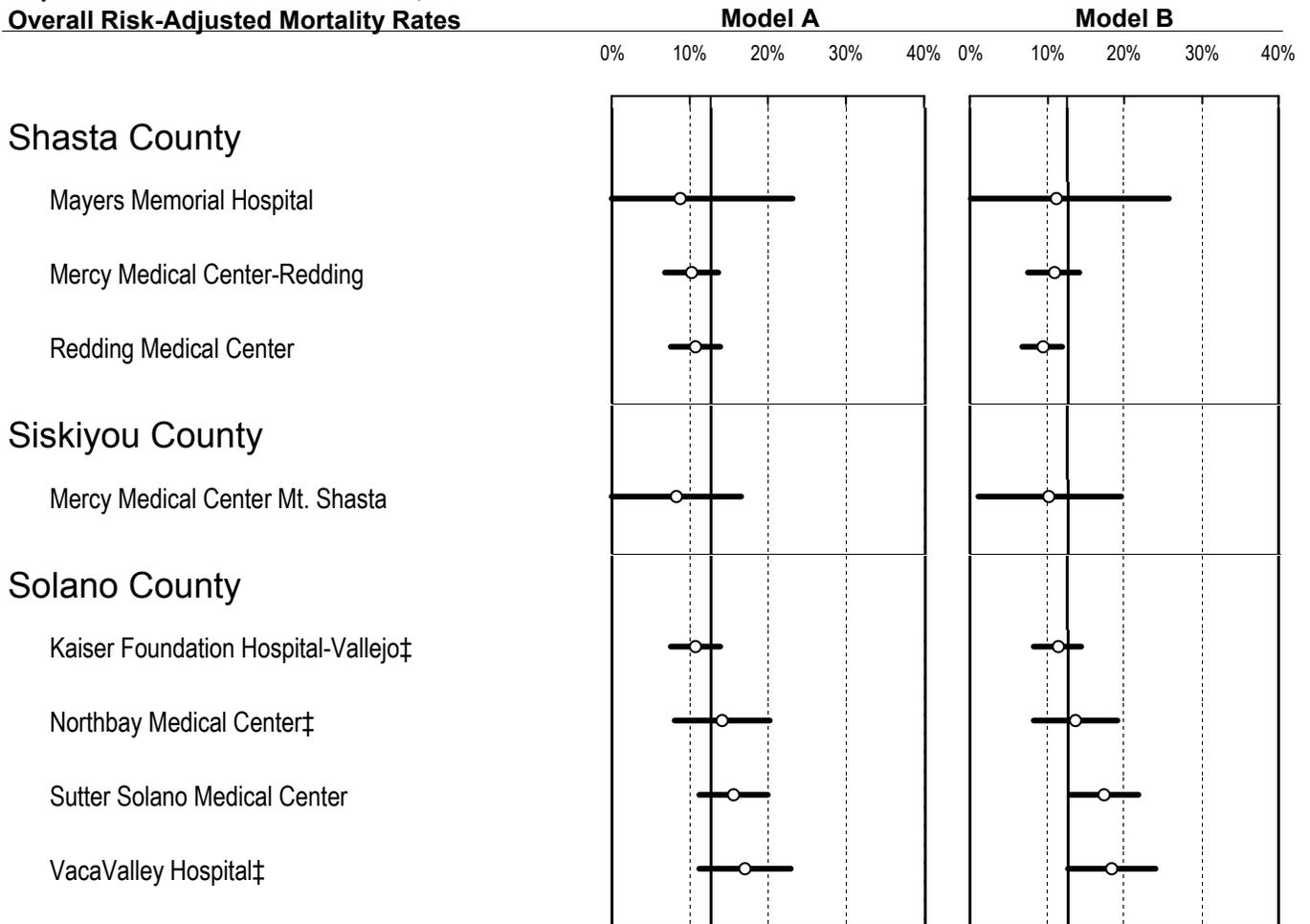


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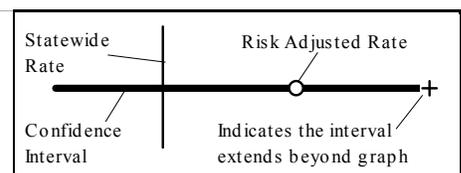


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

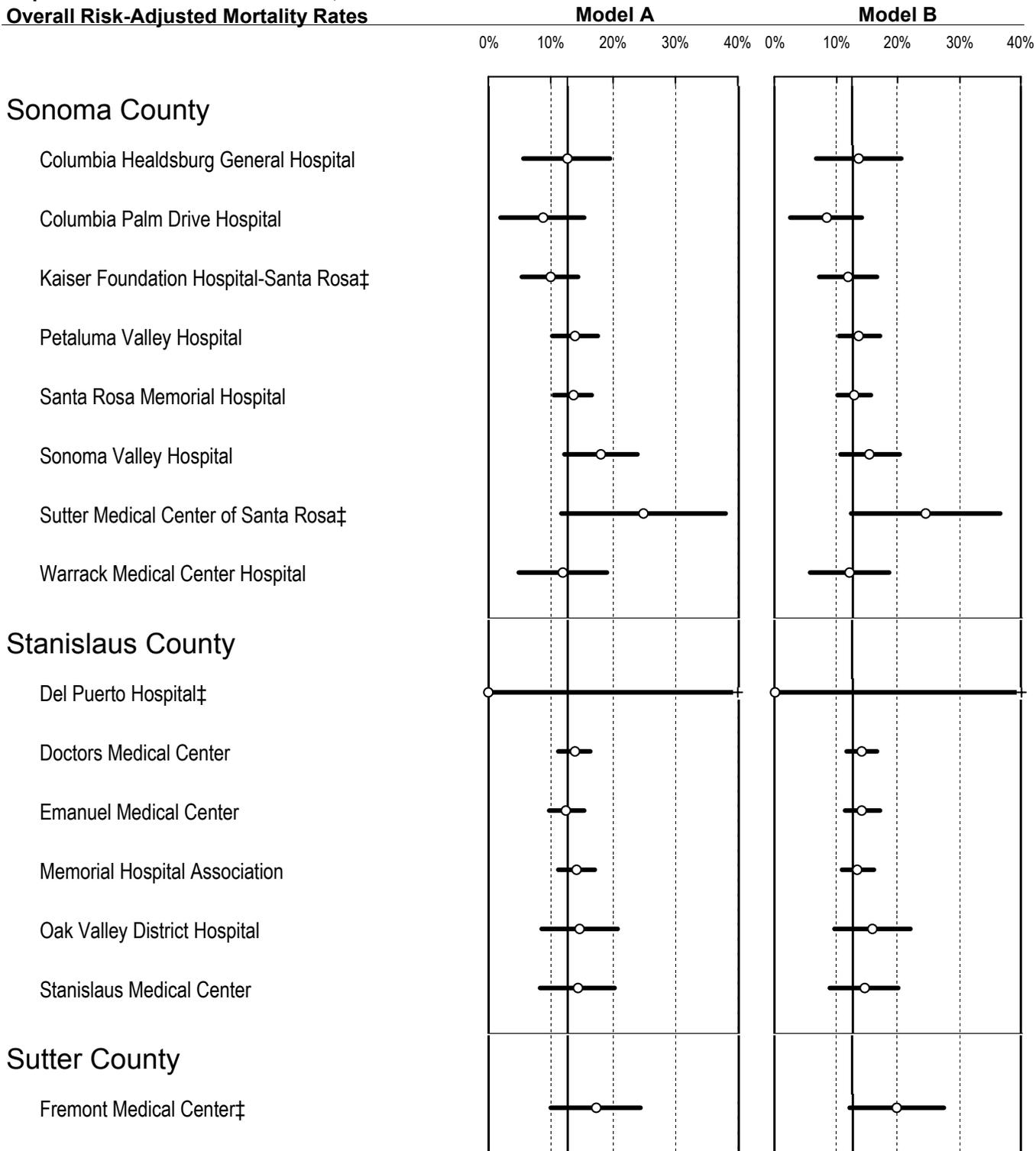


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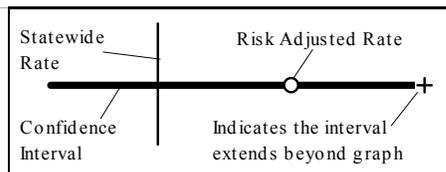


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

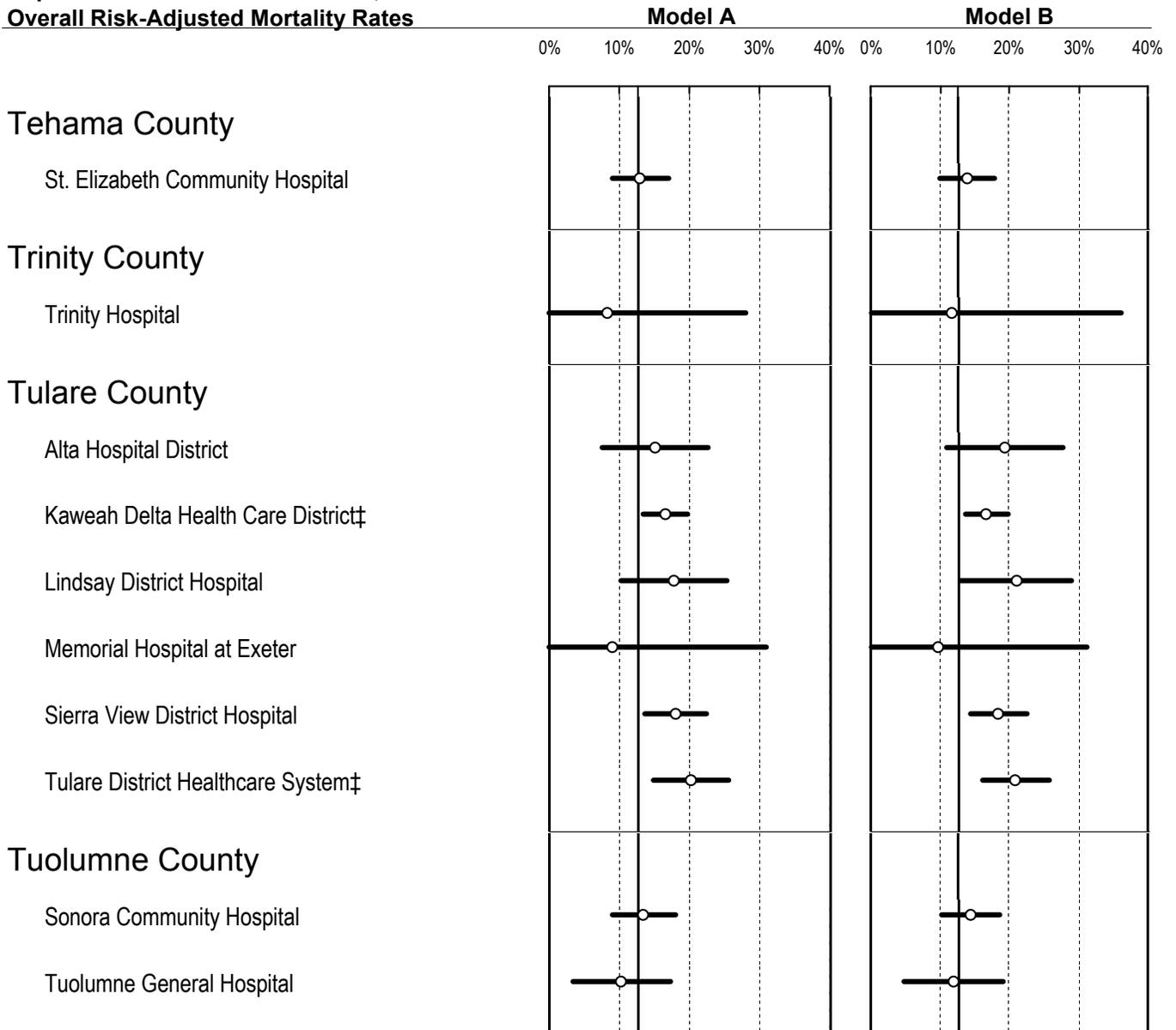


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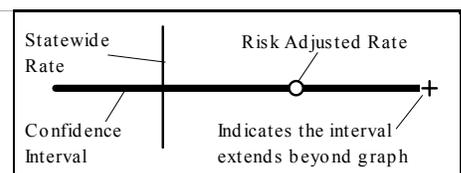


Report on Heart Attack Outcomes, 1994-1996
Overall Risk-Adjusted Mortality Rates

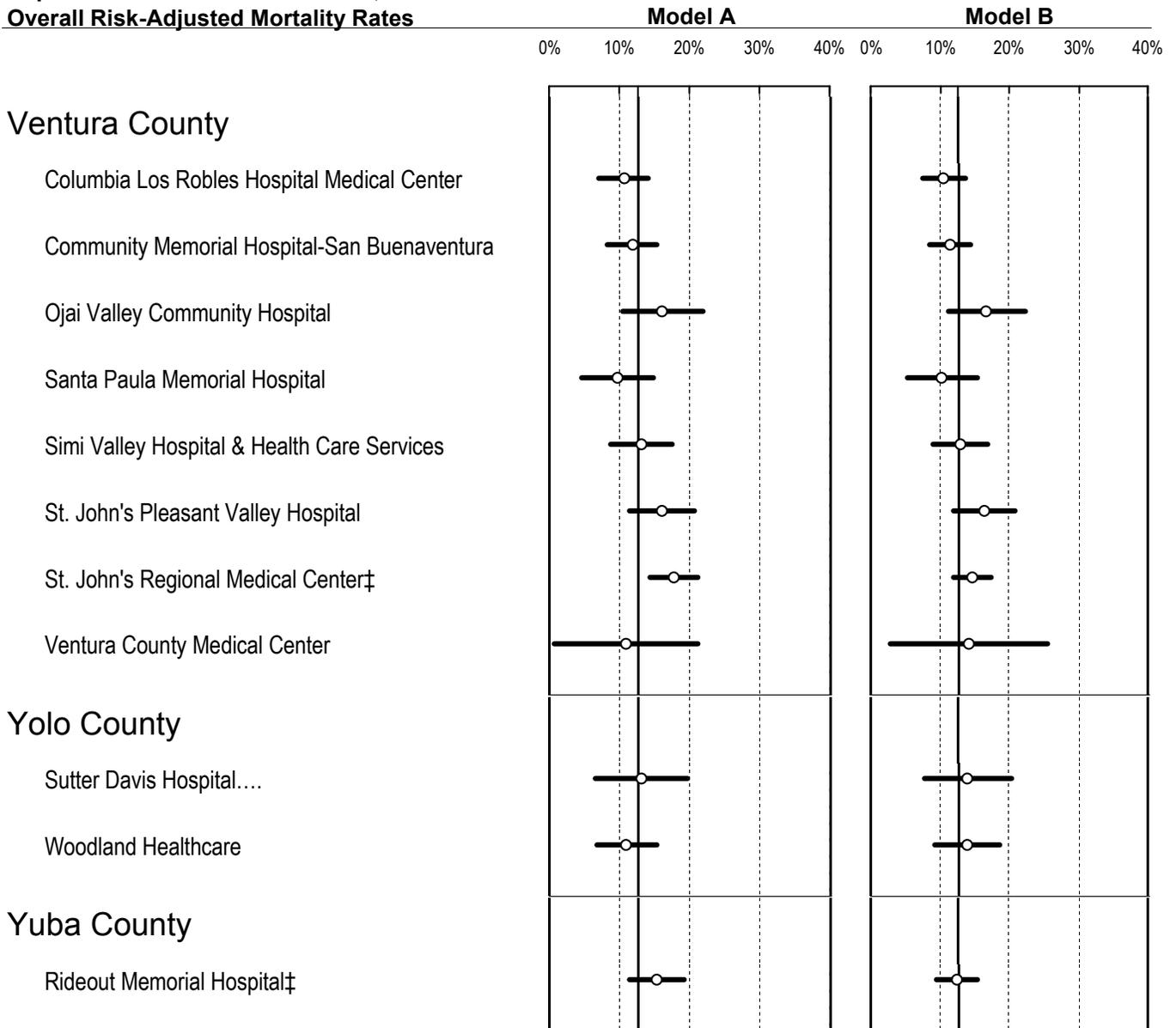


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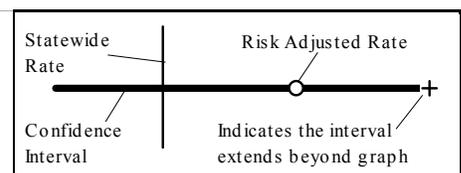


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Additional Sources of Information About Quality

Bay Area Consumers CHECKBOOK
52 Sylvan Way
Oakland, CA 94610
(510) 397-8305

Rates the quality and prices of local service firms ranging from auto repair shops to hospitals

California Department of Corporations
980 9th Street
Sacramento, CA 95814
1-800-400-0815
www.corp.ca.gov

Licenses HMOs that meet specific standards

California Medical Review, Inc.
1 Sansome Street, Suite 600
San Francisco, CA 94101-4448
(415) 677-2000
www.cmri-ca.org

Reviews quality for Medicare program, which includes conducting the Cooperative Cardiovascular Project in California to assess hospital's use of specific AMI therapies

California Public Employees Retirement System
400 P Street
Sacramento, CA 95814
(916) 326-3000
www.calpers.ca.gov

Publishes a report card on health plans

Joint Commission on Accreditation of Health Care Organizations
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
(630) 792-5000
www.jcaho.org

Accredits hospitals that meet specific standards

National Committee on Quality Assurance
1350 New York Avenue, NW Suite 700
Washington, DC 20005
(202) 628-5788
www.ncqa.org

Accredits health plans that meet specific standards

Pacific Business Group on Health
33 Montgomery Street, Suite 450
San Francisco, CA 94105
(415) 281-8660
www.healthscope.org

Works to improve the quality of health care for its 2.5 million represented employees, dependents, and retirees

U.S. Agency for Healthcare Research & Quality
2101 E. Jefferson Street, Suite 501
Rockville, MD 20852
(301) 594-1364
www.ahrq.gov

The federal government's lead agency supporting research to improve quality of health care